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# ANNUAL REPORT

OF THE

# CANAL COMMISSIONERS



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# STATE OF NEW YORK.

No. 45.

# IN ASSEMBLY,

January 29, 1877.

## ANNUAL REPORT OF THE CANAL COMMISSIONERS.

## STATE OF NEW YORK:

Canal Commissioners' Office, Albany, December 31, 1876.

To the Honorable the Legislature of the State of New York:

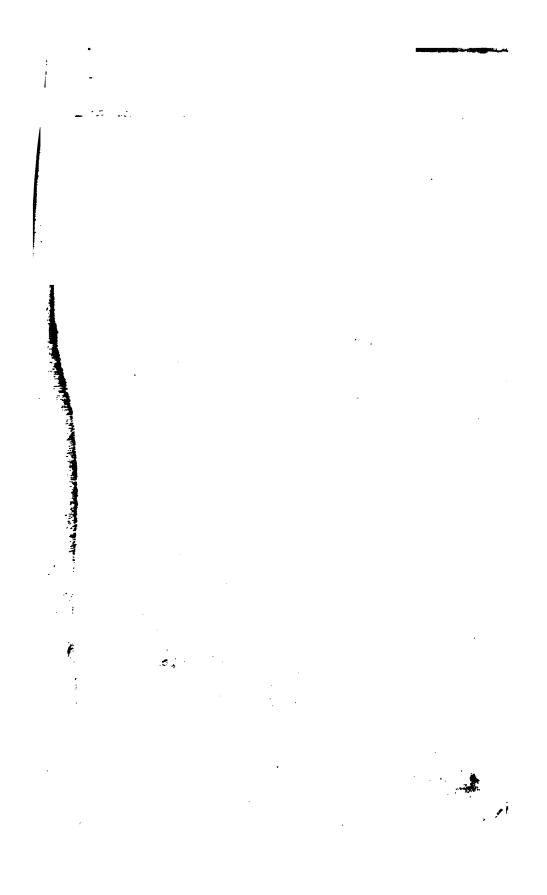
The undersigned herewith transmit their respective reports as Canal Commissioners, for the fiscal year ending the 30th day of September, 1876.

Very respectfully,

JAMES JACKSON, JR.,
ADIN THAYER,
C. A. WALRATH,
Canal Commissioners.

•

MAIN W.LEBANON CLAREMONT KEENE H INCTON ATH ADAMS MORTHFIELD LOWEL GREENFIE SACHUS/ETTS DEDHAM SPRINGFIELD HARTFORD O CALL ISLAND SOUND ATLANTIC



# ANNUAL REPORT.

#### STATE OF NEW YORK:

Canal Commissioners' Office, Albany, October 1, 1876.

Honorable the Legislature of the State of New York:

Canal Commissioners, in charge of the canals of this State, ully submit their annual report for the fiscal year ending Sep-30, 1876.

Board of Canal Commissioners, on the 1st day of January, onsisted of James Jackson, Jr., Adin Thayer and Christopher rath.

is organized by the election of James Jackson, Jr., president, ristopher A. Walrath, secretary.

Adin Thayer was assigned, in special charge, the eastern of the canals, which is made up as follows:

ERIE CANAL, EASTERN DIVISION.		
•	Miles.	Miles.
to east bank of Oneida Lake canal	133.58	
basin (1 mile for tolls, Laws of 1849)	.77	•
huyler and West Troy side-cuts	.35	
		134.70
lain canal and Waterford side-cut	<b>66.</b> 00	
ibove Troy dam	3.00	
Falls feeder and pond above	12.00	
		31.00
River canal	35.33	•
River feeder and pond above dam	12.09	
eeder	<b>1.3</b> 8	
River improvement	42.50	
		91.30
otal	• • • • • • • •	307.00

On the 27th day of January, 1876, the Canal Board changed the then existing limits of the eastern division, by making the east line of Oneida county the western limit of the division, and adding to the middle division the portion so taken from the eastern division, and also the Black River canal, leaving the eastern division for the balance of the year as follows, viz.:

ERIE CANAL, EASTERN DIVISION.	
Miles.	Miles.
Albany to east line of Oneida county	
Albany basin (1 mile for tolls, Laws of 1849)	•
Port Schuyler and West Troy side cuts	
Mohawk feeder	107.86
Champlain canal and Waterford side-cut 66.00	101.00
Pond above Troy dam	
Glen's Falls feeder and pond above 12.00	
· —	81,00
Total	188 88
Total	100,00
	i.
To C. A. Walrath was assigned, in special charge, the	middle
division of the canals, which embraces the following:	
Erie canal, from the east bank of the Oneida Lake canal to	Miles.
the county line between Seneca and Wayne counties,	
including the several feeders and reservoirs	76
Chenango canal, feeders and reservoirs	97
Chenango canal extension, now under contract for con-	
struction	<b>3</b> 0
Oswego canal	<b>3</b> 8
Oneida Lake canal	7
Oneida River improvement	20
Seneca River towing-path	5 <del>2</del>
Cayuga and Seneca canal	23
Cayuga inlet	2
Crooked Lake canal	8
Chemung canal	23
Chemung canal feeder	16
Seneca River improvement	12 <del>1</del>
Total	358

On the 27th day of January, 1876, the Canal Board added to this division the portion taken from the eastern division, and extending from the east line of Oneida county to east bank of Oneida Lake canal at Higginsville, and the Black River canal, making the present extent of the division as follows, viz.:

ERIE CANAL, MIDDLE DIVISION.	
Erie canal, from the east line of Oneida county to east line	Miles.
of Wayne county	97.02
Limestone feeder, Erie canal to Fayetteville	.80
Butternut Creek feeder, Erie canal to Dunlapville	1.55
Camillus feeder, Erie canal to Camillus	1.00
Oneida Lake canal, Durhamville to Oneida lake	5.00
Oswego canal, Syracuse to Oswego	38.00
Cayuga and Seneca canal, Montezuma to Cayuga and Seneca	
lakes	$\boldsymbol{22.77}$
Crooked Lake canal, from Seneca lake to Crooked lake	8.00
Chemung canal, from Watkins to Elmira	23.00
Chemung canal feeder, from Horseheads to Corning	16.00
Chenango canal, from Utica to Binghamton	97.00
Chenango canal extension, Binghamton to Pennsylvania	
State line (not completed)	30.00
Ithaca inlet, Cayuga lake to Ithaca	2.00
Baldwinsville canal, Improvements to Jack's Reefs	12.50
Seneca River towing-path, Baldwinsville to Mud Lock	5.75
Oneida River improvement, Oswego canal to Oneida lake	20.00
Black River canal	35.33
Black River canal feeder and pond above dam	12.09
Delta feeder	1.38
Black River improvement	42.50
Total	471.69
-	
To James Jackson, Jr., was assigned, in special charge, the ern division of the canals.	ie west-
The canals embraced in this division are as follows:	
Erie canal, from the east line of Wayne county to Buffalo,	Miles.
including works connected therewith	148.90
Genesee Valley canal, from Rochester to Olean	107.00
Extension of said canal from Olean to Mill Grove	6.50
Zanounda de Mara danne irone delen no mini dididi, , , , , ,	0.00

Dansville branch, from Shakers to Dansville	Miles. 11.00
•	
Genesee River feeder, Rochester	<b>2.25</b>
Genesee River feeder, Oramel	.75
Total	276.40
The limits of this division were not changed by the Canal	Doard.
Summary.	Miles.
Eastern division	188.86
Middle division	471.69
Western division	276.40
Total	936.95

JAMES JACKSON, JR., ADIN THAYER, C. A. WALRATH, Canal Commissioners.

# EASTERN DIVISION.

## REPORT OF ADIN THAYER, CANAL COMMISSIONER.

The commissioner in charge of the eastern division of New York State canals respectfully submits his annual report for the fiscal year ending September 30, 1876.

The eastern division comprised that portion of the Erie canal extending from the south end of the Albany basin, at its junction with the Hudson river, to the east bank of the Oneida Lake canal at Higginsville, nine miles west of Rome, for the first five months of the year (from October 1, 1875, to March 1, 1876), the Champlain canal extending from Troy to Whitehall, and the Black River canal and Improvement extending from Rome to Carthage, together with the feeders, dams, side-cuts and reservoirs connected therewith, its aggregate length then being 307 miles.

For the remaining seven months (from March 1 to October 1, 1876), the division was constituted as follows, viz.:

The eastern division embraces that portion of the Erie canal which extends from the south end of the Albany basin, at its junction with the Hudson river, to the east line of the county of Oneida and the Champlain canal, with the feeders, reservoirs, dams and side-cuts connected therewith, its aggregate length being 189 miles.

From October 1, 1875, to March 1, 1876, this division had nine superintendent or repair sections, as follows: Five on the Erie, three on the Champlain, and one on the Black River canal. On these sections, for the first five months of the fiscal year, the following named superintendents of repairs were in charge:

Section 1, Erie canal	Michael McDonough.
Section 2, Erie canal	Benjamin Van Vranken.
Section 3, Erie canal	Charles H. Quackenbush.
Section 4, Erie canal	Stephen B. Johnson.
Section 5, Erie canal (one month)	John Johnson.
Section 5, Erie canal (seven months)	Giles Hawley.
Section 1, Champlain canal	Daniel F. Wetsel.
Section 2, Champlain canal	George Conery.

Section 3, Champlain canal ...... John W. Ingalls. Black River canal ...... Samuel F. Garmon.

From March 1, 1876, for the remaining eight months of the year, there were but seven repair sections on the division; the Canal Board added to the middle division that portion of the Erie canal lying west of the east line of the county of Oneida, and all the Black River canal and improvement.

The following is a description of the sections of the eastern division as they now stand:

#### ERIE CANAL.

Section 1 — To extend from the south end of Albany basin to the west end of Lower Mohawk aqueduct, including West Troy and Port Schuyler side-cuts, and Champlain canal from its junction with the Erie canal to a point 200 feet north of guard-lock at Cohoes, on the south side of the Mohawk river.

Section 2 — To extend from the west end of the Lower Mohawk aqueduct to the head of lock 27.

Section 3 — To extend from the head of lock 27 to the head of lock 34, including Schoharie Creek feeder.

Section 4 — To extend from the head of lock 34 to the easterly line of the county of Oneida.

#### CHAMPLAIN CANAL.

To constitute three superintendents' sections, as in 1875.

The following named superintendents of repairs were in charge of these sections from March 1 to October 1, 1876:

Michael McDonough.
Benjamin Van Vranken.
Charles Zielley.
Reuben C. Petrie.
James Dougrey, Jr.
George Shannon.
John W. Ingalls.

The subjoined statements give the expenditures, with their objects and amounts in detail, and are followed by general remarks exhibiting the condition of the division, with such recommendations as seem necessary for the commissioner to make for the public interest and well-being of the canal.

## ERIE CANAL, SECTION 1.

## MICHAEL McDonough, Superintendent.

Limit of Section. — This section extends from the south end of the Albany basin to west end of the Lower Mohawk aqueduct, also that portion of the Champlain canal extending from the junction to a point 200 feet north of the Cohoes guard lock, a distance of sixteen miles.

Structures. — The structures upon the section are: Forty-five (45) locks, one hundred and eighty-six (186) lock-gates, one (1) aqueduct, seven (7) waste-weirs, sixteen (16) culverts, two (2) weigh-locks, fourteen (14) farm bridges, wood; four (4) road bridges, wood; twenty (20) road bridges, iron; one (1) tow-path bridge, wood; four (4) tow-path bridges, iron; two (2) State scows, two (2) ice-breakers, one (1) under-water excavator, eight (8) lock-houses, twenty-nine (29) watch-houses, one (1) dwelling-house, one (1) State shop, two (2) timber-sheds and two (2) swing bridges.

Locks.—Lock No. 1, at Albany, was deemed very insecure and a coffer-dam was put in around the foot of it and repairs commenced upon it last winter. Before the repairs could be completed the high water		
in the river made it impossible to complete it, and it		
was only strengthened so as to go through this season.		
The sixteen locks were thoroughly overhauled, new		
miter-sills, bumpers and bottoms put in and repaired.	<b>A</b>	
The total cost was	<b>\$</b> 5,587	
Lock-tending.—There was expended for lock-tending,	30,670	38
Oil for Locks. — There was expended for oil, glass		
and repairs to lamps	371	27
Lock-gates. — The lock gates were thoroughly over-		
hauled and repaired before the opening of navigation;		
twenty-five new gates have been put in during the sea-		
son, and the expense of the same has been	19 640	۲O
· · · · · · · · · · · · · · · · · · ·	13, 648	อฮ
Aqueduct.—The lower Mohawk aqueduct was		
rebuilt last winter. It was deemed necessary to sheet		
over the bottom of the same, and the stone piers, to		
protect them from the ice. This has been done at a		
cost of	4,130	05
Waste-weirs. — The waste weirs were repaired at a		
cost of	398	00

Culverts Dry River culvert was deepened and		
lengthened, and with the repairs to the others, cost  Weigh-lock. — Albany and West Troy weigh-locks	\$3,022 28	3
were repaired and adjusted before the opening of navi-		
gation, and the expense was	347 30	)
Bridges. — Three new bridges have been built upon		
the section, and Ferry street, Albany, and Broadway		
street iron bridges, West Troy, were repaired, and all	•	
new timber put in Menand's road bridges; abutments		
were rebuilt and with extensive repairs to the other		
bridges upon the section, have cost	9,569 04	Ļ
scows the sum of	154 91	L
Workshops. — There was expended for caring for State		
shop during the winter	80 00	)
Watch-houses. — Three new watch-houses have been		
built upon the section which, with repairs to the others,		
have cost	122 00	٠ (
Tow-path and Berme Bank.—The tow-path and berme banks have required an unusual amount of rais-		
ing and strengthening the past season, and have cost		
the sum of	0 K00 04	
Cleaning Canal. — The prism of the canal, between	6,538 04	•
West Troy and Albany, had not been bottomed out in		
sixteen years, and to insure navigation this was done		
during spring repairs; a depth of seven feet of water		
was given its entire length, and with the cleaning of		
the Champlain and through the sixteen locks, cost the		
sum of	5,529 94	
Slope and Vertical Wall.—It was necessary to rebuild	01020 84	:
about 500 feet slope wall on nine mile level, and the	•	
wall along the Cohoes Company canal, at lock 16, had		
to be repaired. The vertical wall which was taken		
down by the engineers for inspection, was also replaced,		
and with the general repairs to the slope and vertical		
walls, upon the section, cost the sum of	4,715 47	
Docking. — Timber coping has been placed on the top		
of walls in many places, and with general repairs to		
docking, upon the section, has cost the sum of	3,397 79	

## CANAL COMMISSIONERS.

Breaches. — The cost of repairing the breach at Port Schuyler was	<b>\$4</b> 61 5	(A)
Breaking Ice. — The cost of breaking ice and assist-	φποι ο	,0
ing boats was	267 7	0.
have been kept on the nine-mile level and on the Cham- plain canal, at a cost of	976 7	78
assisting navigation, and the expense of running the steam tug Alex. Barkley, the sum of	5,348 1	.3
Piers. — Five new piers were constructed at the sixteen locks before the opening of navigation, and exten-		
sive repairs made to the others upon the section, at a cost of	7,506 6	7
Miscellaneous. — There was expended for publishing		
abstracts, telegraph, etc., the sum of	342 4 900 0	
Superintendent's Salary. — There was paid superin-		,
tendent for services	1,500 0	_
Total	\$105,585 4	.1
=		=
RECAPITULATION.	<del></del>	=
RECAPITULATION. Locks	<b>\$5,587</b> 1	6
RECAPITULATION. Locks	\$5,587 10 30,670 3	6 8
RECAPITULATION. Locks	\$5,587 1 30,670 3 371 2	6 8 7
RECAPITULATION. Locks	\$5,587 1 30,670 3 371 2 13,648 5	6 8 7
RECAPITULATION.  Locks.  Lock-tenders.  Oil for locks  Lock-gates.  Aqueduct	\$5,587 1 30,670 3 371 2 13,648 5 4,130 0	6 8 7 9
RECAPITULATION.  Locks Lock-tenders Oil for locks Lock-gates Aqueduct Waste-weirs.	\$5,587 1 30,670 3 371 2 13,648 5 4,130 0 398 0	6 8 7 9 5
RECAPITULATION.  Locks Lock-tenders Oil for locks Lock-gates Aqueduct Waste-weirs. Culverts.	\$5,587 10 30,670 3 371 2 13,648 5 4,130 0 398 0 3,022 2	6 8 7 9 5 0 8
RECAPITULATION.  Locks Lock-tenders Oil for locks Lock-gates Aqueduct Waste-weirs. Culverts. Weigh-locks.	\$5,587 1 30,670 3 371 2 13,648 5 4,130 0 398 0 3,022 2 347 3	6 8 7 9 5 0 8
RECAPITULATION.  Locks Lock-tenders Oil for locks Lock-gates Aqueduct Waste-weirs. Culverts. Weigh-locks. Bridges	\$5,587 1 30,670 3 371 2 13,648 5 4,130 0 398 0 3,022 2 347 3 9,569 0	6 8 7 9 5 0 8 0 4
RECAPITULATION.  Locks Lock-tenders Oil for locks Lock-gates Aqueduct Waste-weirs. Culverts. Weigh-locks. Bridges State scows.	\$5,587 1 30,670 3 371 2 13,648 5 4,130 0 398 0 3,022 2 347 3 9,569 0 154 9	6 8 7 9 5 0 8 0 4 1
RECAPITULATION.  Locks Lock-tenders Oil for locks Lock-gates Aqueduct Waste-weirs. Culverts Weigh-locks. Bridges State scows. Workshops	\$5,587 1 30,670 3 371 2 13,648 5 4,130 0 398 0 3,022 2 347 3 9,569 0 154 9 80 0	6 8 7 9 5 0 8 0 4 1 0
RECAPITULATION.  Locks Lock-tenders Oil for locks Lock-gates Aqueduct Waste-weirs Culverts Weigh-locks. Bridges State scows. Workshops Watch-houses	\$5,587 1 30,670 3 371 2 13,648 5 4,130 0 398 0 3,022 2 347 3 9,569 0 154 9 80 0 122 0	6 8 7 9 5 0 8 0 4 1 0 0
RECAPITULATION.  Locks Lock-tenders Oil for locks Lock-gates Aqueduct Waste-weirs. Culverts. Weigh-locks. Bridges State scows. Workshops Watch-houses Tow-path and berme bank	\$5,587 1 30,670 3 371 2 13,648 5 4,130 0 398 0 3,022 2 347 3 9,569 0 154 9 80 0 122 0 6,538 0	6 8 7 9 5 0 8 0 4 1 0 0 4
RECAPITULATION.  Locks Lock-tenders Oil for locks Lock-gates Aqueduct Waste-weirs. Culverts. Weigh-locks. Bridges State scows. Workshops Watch-houses Tow-path and berme bank Cleaning canal.	\$5,587 1 30,670 3 371 2 13,648 5 4,130 0 398 0 3,022 2 347 3 9,569 0 154 9 80 0 122 0 6,538 0 5,529 9	6 8 7 9 5 0 8 0 4 1 0 0 4 4
RECAPITULATION.  Locks Lock-tenders Oil for locks Lock-gates Aqueduct Waste-weirs. Culverts Weigh-locks. Bridges State scows. Workshops Watch-houses Tow-path and berme bank Cleaning canal Slope wall	\$5,587 1 30,670 3 371 2 13,648 5 4,130 0 398 0 3,022 2 347 3 9,569 0 154 9 80 0 122 0 6,538 0 5,529 9 4,715 4	6 8 7 9 5 0 8 0 4 1 0 0 4 4 7
RECAPITULATION.  Locks Lock-tenders Oil for locks Lock-gates Aqueduct Waste-weirs. Culverts. Weigh-locks. Bridges State scows. Workshops Watch-houses Tow-path and berme bank Cleaning canal Slope wall Docking.	\$5,587 1 30,670 3 371 2 13,648 5 4,130 0 398 0 3,022 2 347 3 9,569 0 154 9 80 0 122 0 6,538 0 5,529 9 4,715 4 3,397 7	6879508041004479
RECAPITULATION.  Locks Lock-tenders Oil for locks Lock-gates Aqueduct Waste-weirs. Culverts Weigh-locks. Bridges State scows. Workshops Watch-houses Tow-path and berme bank Cleaning canal Slope wall	\$5,587 1 30,670 3 371 2 13,648 5 4,130 0 398 0 3,022 2 347 3 9,569 0 154 9 80 0 122 0 6,538 0 5,529 9 4,715 4	68795080410044790

Watching canal	<b>\$</b> 976	<b>7</b> 8
Assisting navigation	5,348	13
Piers	7,506	67
Miscellaneous	342	41
	<b>\$</b> 103,185	41
Clerk hire	900	00
Superintendent's salary	1,500	00
Total	\$105,585	41

#### Sunken Boats.

There have been no sunken boats upon the section during the season.

## Delays to Navigation.

There have been no delays to navigation except a short delay repairing bottom of lock No. 7, and fifteen hours' delay caused by the break in Dermott & Co.'s canal in the spring.

## Depth of Water.

At least a depth of seven feet of water has been maintained upon the lower miter-sills during the season.

The increased expenses upon the section during the last year have been caused, as an inspection of the expenditures will show, by the large amount of work done as ordinary repairs, which has years before been done and paid for as extraordinary repairs. No extra expense has been created or repairs made that have not been deemed necessary to insure the safety of the structures and maintain good navigation.

The bottom of lock No. 1, at Albany, must be repaired the coming winter, and the bottom of all of the sixteen locks, except Nos. 6, 8, 12, 16 and 17, should be concreted and repaired before the opening of navigation.

The waste-weir between locks 3 and 4 is very insecure. It should be rebuilt.

The structures connected with the West Troy and Albany weighlocks are in an unsafe condition. They should be rebuilt.

Several of the diving culverts upon the section have not capacity enough for the purpose for which they were constructed. They should be deepened and enlarged.

Five wooden bridges upon the section are condemned. They will

have to be rebuilt. I would recommend that they be replaced by structures with iron chords instead of wooden ones.

The wooden bridge that crosses the canal at Port Schuyler, and which is used by the Albany and West Troy Horse Railroad Company, has been deemed unsafe, as at any time it is liable to break down, and should be replaced the coming winter by a good and substantial wrought-iron bridge.

A small scow should be built for the use of the section. It is much needed for putting in lock-gates and repairing them.

The sheds and shops attached to the Cohoes State shops will have to be reconstructed. It has been decided to build a retaining wall and fence, and blacksmith shop, and I have now commenced them.

The Champlain canal, from the Junction to the Mohawk river, was left in an unfinished state by the contractors.

I have kept up navigation upon it during the season at a large expense, and economy would seem to require that it be more than temporarily repaired before the opening of navigation.

The docking on the West Troy level is old and decayed. It should be thoroughly overhauled and rebuilt, and thereby save a large item of temporary repairs.

The piers at the heads of the sixteen locks, except those rebuilt last winter, are very unsafe. Several of them must be rebuilt and all of them will require more or less general repairs.

#### M. McDONOUGH,

Superintendent of Canal Repairs.

October 1, 1876.

•		
. 2. Drafts on Auditor.		
Commissioner's salary	<b>\$2,</b> 000	00
Commissioner's traveling expenses	800	00
Timber and lumber and labor for retrunking Lower.		
Mohawk aqueduct	29, 218	<b>51</b>
3. Miscellaneous Expenditures by Commission Salaries, printing, postage, stationery, express, telegrams, commissioner's office, and general miscel-		
laneous expenses	\$9,673	89
State dredge, eastern division	8,331	49
Tug Barkley	381	12
Legal expenses, Canal Appraisers, serving subpœnas on		
witnesses	305	40

#### II. EXTRAORDINARY REPAIRS.

## 1. Drafts on Auditor.

Exchange street bridge	\$2,070	61
Menand's road bridge, final	2,151	<b>56</b>
Engineering	5,000	00

#### 2. Miscellaneous.

Engineering on eastern division, chargeable to extra-	
ordinary repairs	\$7,793 00

#### SECTION No. 2.

## BENJ. VAN VRANKEN, Superintendent.

Section No. 2, Erie canal, extends from the head of the Lower Mohawk aqueduct to the head of lock 27, a distance of thirty-two miles.

The structures on this section are eighteen locks, one guard-lock, seventy-six lock-gates, three aqueducts, viz., the Upper Mohawk, Van Slyck's and Hoffman's; three waste-weirs, eighteen culverts, ten farm bridges (wood), six farm bridges (iron), nine road bridges (wood), nineteen road bridges (iron), one tow-path bridge (wood), one exchange bridge (wood), one draw bridge (wood), two State scows, two ice breakers, seven lock-houses, one workshop, one timber-shed, and one dam, including a fishway, across the Mohawk river, at the upper aqueduct.

#### Locks.

The bulk-heads at locks Nos. 19, 20, 21, 22, 23, 24, 25, 26 and 27 have been repaired, and the piers graveled. One new bulk-head has been constructed at lock 19, one at lock 23, one at lock 24, one at lock 25, one at lock 26, and two at lock 27; one new capstan has been placed in each of the nine locks; the apron at lock 27 has been repaired; eighteen new bumping-beams put in; five new miter-sills inserted, viz., one at lock 19, one at lock 20, one at lock 22, one at lock 23, one at lock 26. Cost of new bulk-heads, etc., \$2,496.64; cost of repairs, \$979.10; total, \$3,475.74.

## Lock-tending.

Competent men have been employed on all the locks at an expense of \$6,942.96.

## New Łock-gates.

Two new gates have been inserted at lock 19, three at lock 22, one at lock 23, two at lock 24, and two at lock 25, leaving four on hand, at an expense of \$3,178.26.

## Lock-gates Repaired.

Lock-gates at locks Nos. 19, 20, 21, 22, 23, 24, 25, 26 and 27 have been repaired. Thirteen new balance beams and thirty-six new valves have been used. Two gates at lock 19 have been replanked, two at lock 20, two at lock 21, two at lock 22, one at lock 23, two at lock 25, two at lock 26, and two at lock 27. One new toe-post has been inserted at lock 20, and one at lock 21, at a cost of \$2,969.74.

## Aqueducts.

The new trunk in the Upper Mohawk aqueduct was completed, a new trunk put in Van Slyck's, the ends of both concreted; the bottom of Hoffman's, which was raised three feet by freshets, relaid, and all three generally repaired. Cost of new work, \$2,448.22; cost of repairs, \$743.27; total, \$3,191.49.

#### Culverts.

Dunsback's, Swart's, Klein's, and the culvert on the four-mile level have been repaired at an expense of \$326.50.

## New Bridges.

The old bridges at Vedder's, Maxon's, Turnbull's and John Clute's have been taken down and replaced by new iron chord bridges, at a cost of \$2,490.97, and a new stone abutment, under the draw bridge at Rexford's flats, built at an expense of \$390.25; total, \$2,881.22.

# Repairing Bridges.

One thousand seven hundred and eighty-five dollars and fifty-two cents have been expended in repairing the bridges on this section, as follows: General repairs upon and raising approaches to the Vischer's ferry, Clute's, Rexford's Flats, Draw, Freeman's, Van Vranken's; Jefferson, State, Liberty, Church streets, Schenectady; Schermerhorn's Van Patten's, Vedder's, Crawford's, Turnbull's, Buy's, Klein's, Felter's and Hoffman's Ferry bridges. The Vischer's ferry, Exchange, Draw, Fonda's, Freeman's, Jefferson, Green and Church streets bridges have been completely, and Union and State streets, partially, replanked; Church and Jefferson streets, and Mabee's have been painted. Five new needle beams have been put in the Vischer's

Ferry bridge, three in Jefferson, one in Green and five in Church street. Three new braces have been inserted and one new chord spliced in the Exchange bridge at Rexford's Flats, and the abutment of the Hoffman's Ferry bridge repaired.

### State Scores.

Fifty-five dollars and eighty-five cents have been expended upon the State scows for necessary repairs.

#### Ice Breaker.

A new ice breaker was built at an expense of \$528.53.

## Tow-path.

Four thousand and sixty-nine dollars and twenty-four cents were expended in raising, widening and strengthening the tow-path and berme bank on the nine, three, three and one-half, seven, one-half, four and seven and one-half mile levels.

#### Prism.

Two thousand one hundred and twenty-seven dollars and twenty-four cents were expended in cleaning out the botton of the canal, during spring repairs, on the nine, three, three and one-half, seven, one-half, four and seven and one-half mile levels.

#### Creeks.

Hoffman's creek was cribbed and cleaned at an expense of \$1,915.09, the spill-way at Black creek, on the three-mile level, repaired at an expenditure of eleven dollars, and Van DeBogart's ditch cleaned for en dollars and fifty cents; total, \$1,936.59.

#### Dam.

One hundred and twenty-two dollars and twenty cents were expended in repairing the fishway in the dam, at the Upper Mohawk aqueduct.

#### Slope Wall.

It cost \$575.75 to remove the bench-wall below lock 19 and build 300 feet of slope wall in its place, and \$253.87 to repair the slope wall and pavement on the nine, three, three and one-half and seven-mile levels; total, \$829.62.

## Docking.

Ten thousand and seven feet of new docking have been made and placed on the "long docking," above Schenectady, on the seven-mile level, at an expense of \$1,933.18, and the docking on the nine, one-

half and seven-mile levels has been repaired at a cost of thirty-four dollars and sixty-three cents; total, \$1,967.81.

#### Breaches.

Unpaid bills to the amount of \$137.18, on account of the break in the school-house culvert, have been paid, and \$824.87 expended in repairing breaches on the seven and one-half-mile level, below lock 26, caused by freshets; total, \$962.05.

## Snubbing Posts.

Two hundred and fifty snubbing posts have been set on the nine, seven, four and seven and one-half-mile levels, at an expense of \$316.75.

## Breaking Ice, etc.

The cost of breaking ice and assisting boats in consequence of ice was \$3,476.14, and of repairing the boat "T. W. Furbeck," damaged while breaking ice, seventeen dollars and thirty-four cents; total, \$3,493.48.

## Watching Canal.

Reliable watchmen have been employed, both day and night, on all the dangerous embankments, also on the Schenectady bridges, and at the State house, at an expense of \$1,684.70.

One hundred and ninety-two dollars and fifty cents were expended in making pike poles, ice-hoes, etc.; \$643.28 in unloading and piling lumber at the Upper Mohawk aqueduct, sixty-one dollars in cutting weeds, sixteen dollars in raising sunken boat, "Wm. Pope," ten dollars in moving a sunken boat out of the channel on the nine-mile level, thirty-four dollars and forty-one cents in painting the engineer's scow and furnishing supplies, sixty-two dollars and ninety-eight cents for supplies for the tug "A. Barkley," and twenty-three dollars and fifty cents for pumps, and \$225.45 for freight on lumber. One hundred dollars were paid for eight months' rent of storehouse, and twenty-one dollars for rent of shops. One hundred and twenty-four dollars and seventy-one cents for publishing the monthly reports in the Schenectady Gazette. A general foreman has been employed at an expense of \$1,200, and a scow foreman for \$596.12, and the miscellaneous expenses have been seventy-two dollars and twelve cents.

At least seven feet of water have been maintained on all the levels of this section during the season.

#### BENJ. VAN VRANKEN,

Superintendent.

Schenectady, November 20, 1876.

## DETAILED ANNUAL REPORT

Showing the name and number of structures or works, the different heads of expenditure, and the total cost of each, on the line of the canal under the charge of Benj. Van Vranken, superintendent of repairs of thirty-two miles of section 2, Erie canal, extending from head of Lower Mohawk aqueduct to head of lock 27, during the 366 days ending September 30, 1876.

1	2 .	3	4	5
STRUCTURES OR WORKS, ETC.	Whole No. on section.	Cost of new structure.	Cost of repairs of old, etc.	Total new and old.
Locks and guard-locks. Lock tending (exclusive of oil). Lock-gates. Aqueducts	19 76 3	\$2, 496 64 3, 178 26 2, 448 22	\$979 10 6, 942 96 2, 969 74 743 27	\$3, 475 74 6, 942 94 6, 148 04 8, 191 49
Waste-weirs Culverts Farm bridges (wood) Farm bridges (iron)	3 18 10 6		326 50	826 50
Road bridges (wood) Road bridges (tron). Tow-path bridges (wood) Draw bridges (wood). Exchange bridges (wood).	9 19 1 1 1	2, 881 22	, 1,785 52	4, 666 7
State scows Ice breakers Under-water excavators Lock-houses Workshops	2 2 7 1	528, 53	55 85	55 8 528 5
Timber-sheds  Raising and repairing tow-path and berme bank, not including repairs to slope walls	, 1		4,069 24	4,069 2
Cleaning out bottom of canal during spring repairs. Cribbing and cleaning on creeks and ditches. Dams (feet) and fish-way. Slope wall. Docking. Repairs of breaches.	i	1,915 09 575 75 1,983 18	2, 127 24 21 50 122 20 253 87 34 63 962 05	2, 127 2 1, 936 5 122 2 829 6 1, 967 8 962 0
Breaking ice and assisting boats in consequence of ice		192 50	8, 493 48 1, 684 70	3, 493 4 1, 684 7 192 5
axes, etc. Other miscellaneous expenditures Other work of consequence, which does not		192 50	72 12	72 1
come under either of the above heads, viz.: Snubbing poets Unloading and piling lumber. Cutting weeds Sunken boats. Engineer's scow. Tug "A. Barkley". Pumps. Freight Rent, store-house Rent, shops. Publishing reports. General foreman. Scow foreman.	,	\$16,466 14	643 28 61 00 26 00 34 41 62 98 23 50 225 45 100 00 124 71 1, 200 00 596 12	316 77 643 24 61 00 26 00 34 44 62 96 23 56 225 44 100 0 21 00 124 70 1, 200 0 596 15
Superintendent's salary			••••	1,500 0
CIECK B SAIRTY	••• •••••	• • • • • • • • • • • • • • • • • • • •	••••	900 00
				\$48,628 56

## 2. Drafts on Auditor.

Timber, lumber and labor for retrunking Upper	
Mohawk aqueduct	\$32,983 85
Legal services before Canal Appraisers	1,044 04
Constructing vertical walls from lock 22 to lock 23	1,200 60
Constructing vertical walls at Schenectady	1,047 32
3. Miscellaneous.	
Legal services Canal Appraisers	<b>\$4</b> 0 00
II. AWARDS OF CANAL APPRAISERS.  J. B. Kline	<b>\$43</b> 0 00

#### SECTION No. 3.

## CHARLES ZIELLEY, Superintendent.

This section extends from the head of lock 27 to the head of lock 34. Distance, thirty-eight miles; also about five miles of feeders—Rocky rift and Schoharie creek.

The structures on this section are as follows: Fourteen lift locks, sixty-two lock-gates, eight aqueducts, twenty-nine culverts, two wasteweirs, thirty-two farm bridges (wood), fifteen road bridges (wood), eight road bridges (iron), three towing-path bridges, one suspension foot bridge, three lock-houses, two workshops, seven watch houses, two dams and one collector's office.

The annexed table, marked A, shows the cost of ordinary repairs done upon this section by Charles H. Quackenbush, from October 1, 1875, to February 29, 1876, five months.

The annexed table, marked B, shows the cost of ordinary repairs done upon this section by Charles Zielley, from March 1, 1876, to September 30, 1876, seven months.

#### Locks.

New miter-sills have been inserted in locks 28, 31 and 33, the piers of locks 28, 29, 30, 31 and 33 thoroughly repaired, bottoms of locks concreted and planked, heavy snubbing posts have been placed where needed—in fact, all the locks on the section have been kept in good repair and working order, at a cost of \$1,854.27.

## Lock-tending.

Competent and reliable men have been employed to tend the locks, and the utmost care taken to keep the expense down as much as

possible. At no time, since the opening of navigation this spring, have there been more than two men employed on each lock, yet entire satisfaction has been given.

## Lock-gates.

Six new gates have been framed and inserted; two in lock 28, two in lock 29, one in lock 30, and one in lock 31. All other gates on section have been thoroughly repaired. There will need to be framed and inserted, before the opening of navigation next spring, two new gates for lock 28, two for lock 29, four for lock 31, two for lock 32, and two for lock 33.

## Aqueducts.

A new frame and four new wicket gates have been inserted in Fort Plain aqueduct, new wooden piers and bents have been placed in Canajoharie aqueduct, the piers of Schoharie Creek aqueduct have been thoroughly strengthened and braced with stone, and new floor timbers have been inserted in Fort Plain, Canajoharie, Spraker's, Lasher's and Yatesville aqueducts. Fort Plain aqueduct has been replanked anew, and Yatesville, Lasher's, Spraker's, Canajoharie and Fort Plain aqueducts have been taken out and replaced, as is yearly required, at an expense of \$6,097. Out of this amount the sum of \$2,060.70 was expended by Superintendent Quackenbush for the purchase of timber, to be used for inserting new trunk in Port Jackson aqueduct. This work has not been commenced. There should be a new set of waste gates inserted in Spraker's aqueduct before the opening of navigation next spring. The old ones are so badly worn that it is almost impossible to raise them.

#### Waste werrs.

The waste-weirs at Port Jackson and Spraker's have been kept in thorough repair at a cost of seventy-five dollars and twenty-seven cents. I should recommend, by all means, the construction of a new waste-weir at the foot of the feeder level at St. Johnsville. Under the present situation, when there is an excess of water, it has to be sent down over the five-mile level to Fort Plain aqueduct before it can be wasted, at many times causing such a strong current that it is almost impossible for boats to move west.

#### Culverts.

The bottom of Wagner's culvert at Fort Plain, and the bottom of Van Olinda's culvert, below Port Jackson, which were found to

be unsafe during spring repairs, were taken up, replaced and concreted. Lipe's and Winning's culverts, at Fort Plain, have been thoroughly cleaned, and Port Jackson and Wagner's culverts kept clear of ice at a cost of \$507.60.

## Bridges.

Seven thousand six hundred and eleven dollars and thirty-six cents have been expended for the construction of new and the repairs of old bridges. New bridges have been erected as follows: One at Hudson's, fourteen-mile level, one at Van Alstine's, six-mile level, one at Clark's, Fort Plain, one at Downing's, one on two-mile level, one new towing-path bridge at Lasher's aqueduct, one new towingpath bridge at Yatesville aqueduct, and six new feeder bridges over Rocky Rift feeder. Port Jackson, Fort Hunter, Wagner's, Spraker's, Canajoharie, Fort Plain, Smith's, Van Derveer's, Poor-house, Allen's, Koon's, Yates', Van Epps', Lasher's, Putman's Lipe's, and St. Johnsville bridges, and Fort Plain suspension foot bridge, have been thoroughly repaired by replanking, inserting new needle beams, floor timbers and braces and painting. The approaches to Hudson's, Clark's, Van Alstine's, Yates', Canajoharie and Fort Plain bridges have been raised and repaired; also, the abutments and approaches to several feeder bridges on Rocky Rift feeder, which were damaged during the spring freshets. It will be necessary to erect new bridges during the coming year, at the following places: One at Allen's on six-mile level, one on one-mile level, between locks 29 and 30, one on fourteen-mile level, and one on feeder level, above St. Johnsville.

#### State Scows.

The State scows, "Adin Thayer" and "Charles Zielley," have been docked, repaired and painted. The State scow, "E. Sweet, Jr.", has been rebuilt and put in good order.

#### Ice Breakers.

There have been only five dollars and thirty-nine cents expended for the repairs of ice breakers. It will be necessary, however, to build a new one for this fall's use.

#### Lock-houses.

The lock-houses on this section have been shingled, plastered, and otherwise repaired, at a cost of fifty-four dollars and fifty-eight cents.

## Workshops.

The workshop at Fort Plain, which was in such a dilapidated condition that the men could not work in it in cold weather, has been enlarged, rebuilt and painted. Necessary repairs have also been made to the workshop at Fultonville.

## Towing-path.

The towing-path on this section, at the opening of navigation, was found to be in a very bad condition, in many places so low that the required depth of water could not be maintained on the levels without endangering the bank, consequently a great deal of work has been performed in raising it to a proper hight. The towing-path for the distance of about one and a-half miles on the six-mile level, one mile on the five-mile level, and one and a-half miles on the feeder level, has been raised two feet. All other portions of towing-path on this section have also been raised, repaired and strengthened.

## Cleaning Canal.

One thousand seven hundred and ninety-four dollars and eighty-six cents were expended cleaning out the bottom of the canal and Rocky rift and Schoharie Creek feeders during the spring repairs. The further sum of \$306.70 was expended in June and July for cleaning out bar below Port Jackson on five-mile level.

#### Creeks.

Auriesville, Port Jackson, Phillips', Putman's, Yates', Lasher's, Spraker's, Canajoharie, Wagner's and Spork's creeks have been thoroughly cleaned causing an expense of \$696.80.

#### Dams.

Schoharie creek and Rocky Rift feeder dams have been kept in repair during the past season at an expense of \$1,059.64. The bulkhead at Rocky Rift feeder dam has been thoroughly repaired, it having been seriously damaged during the spring freshets.

## Slope Wall.

Twelve hundred lineal feet of new slope wall and paving for same were constructed at Fort Plain this spring before the opening of navigation, and about four miles of old wall have been raised two feet. The raising of the old wall was done at the time the towing

1,574 30

path was raised. Portions of the slope wall on Rocky Rift feeder have also been raised and repaired.

## Docking.

About 2,000 feet of new docking have been put in on five, one, fourteen, six, five and four-mile levels, at a cost of \$769.59.

#### Breaches.

There have been several breaches during the past year: One on the two-mile level occurred in October, 1875. During last spring's freshets the banks of Rocky Rift feeder, near bulk-head, were washed out. Another breach occurred in June, 1876, on five-mile level, below Port Jackson. These breaches were promptly and economically repaired.

## Watching Canal.

Faithful watchmen have been employed on all the dangerous embankments on the section at an expense of \$2,249.28.

### Vertical Wall.

It was found necessary, before the opening of navigation, to replace about 200 feet of vertical wall on one-mile level, which had fallen into the canal; also a quantity of vertical wall on the berme bank at Fultonville had to be taken down and relaid to prevent its falling. The above work cost \$882.24.

There has been at all times, during the season of navigation, a depth of at least, seven feet of water maintained on the lower mitersills of each lock on this section.

#### (A.)

REPORT showing the expenditures for repairs, by C. H. Quad	ckenbu	sh,
during the five months commencing October 1, 1875, and	d end	ing
February 29, 1876:	•	
Lock	\$671	20
T 1 14	2,295	<b>52</b>
	1,232	30
Aqueducts	2,962	23
Waste-weirs	38	47
Bridges	3,440	15
State scows	180	09
Ice breakers	5	39
Lock-houses	39	00
Workshops	20	00

Towing-path .....

01	<b>6</b> 400 10
Cleaning creeks	<b>\$</b> 588 10
Dams	644 10 607 39
Docking	
Breaches	368 60
Breaking ice	3,990 44
Watching canal	669 28
Miscellaneous	191 20
Telegraphing	
Special foreman	500 00
	\$20,100 92
Clerk's salary	375 00
Superintendent's salary	687 50
Total	\$21,163 <b>42</b>
(B.)	
REPORT showing the expenditures for repairs by Cha	ırles Zielley,
during the seven months commencing March 1, 1876	, and ending
September 30, 1876:	
Locks	\$1,183 07
Lock-tending	2, 799 99
Lock-gates	1,868 49
Aqueducts	3,134 77
Waste-weirs	<b>36</b> 80
Culverts	<b>507 60</b>
Bridges	4,171 21
State scows	<b>44</b> 8 <b>98</b>
Lock-houses	15 58
Workshops	429 85
Towing path	5,091 05
Cleaning canal	2,101 56
Cleaning creeks	108 70
Dams	<b>362 84</b>
Slope wall	6,049 69
Docking	162 <b>20</b>
Breaches	3,483 32
Watching canal and feeders	1,580 00
Vertical wall	88 <b>2 24</b>
Miscellaneous	<b>4</b> 30 <b>13</b>
Cutting weeds	117 00
Special foreman	700 00

		~ .
Clerk's salary	<b>\$525</b>	00
Superintendent's salary		00
John Brown, constructing vertical wall in 1875	812	36
Total	\$37, 877	48
II. Extraordinary Repairs.		
Rocky Rift feeder bulk-head, final	\$1,002	04
Hulser's farm bridge, final		
III. Awards of Canal Appraisers.		
Mary G. Ramsey	\$1,947	00

# SECTION No. 4, ERIE CANAL.

### R. C. Petrie, Superintendent.

This section extends from the head of lock No. 34, at Mindenville, to the east line of Oneida county, a distance of twenty-nine miles. It formerly extended from the foot of lock No. 34 to the head of lock No. 45, but, by a resolution of the Canal Board, passed February, 1876, it was changed to its present limits. I would most earnestly recommend the restoring of the control of lock No. 34 to this section.

The structures upon the section are twenty-two lift locks, eightyeight lock-gates, six aqueducts, seven waste-weirs, ten culverts, six road bridges (iron chord), fourteen farm bridges (iron chord), seven road bridges (iron), six road bridges (wood), nineteen farm bridges (wood), two State repair scows, two ice-breakers, eight lock-houses, two workshops, eleven watch-houses, and one timber shed.

The annexed table, marked "A," shows the cost of all the work of ordinary repairs done on the section by the former Superintendent during the five months of the fiscal year ending February 29, 1876. The table marked "B" shows the cost of all the work of ordinary repairs done during the seven months of the fiscal year ending September 30, 1876.

The locks upon the section have been kept in efficient repair. Six new timber piers have been built at the following locks: One each at No. 35, 40, 41, 42, 43 and 45; and the bottoms of locks No. 40, 44 and 45 were repaired by new timber and grouting.

Seven new piers require to be built the coming season, viz.: One each at No. 37, 38, 39, 41, 42, 43 and 44, and new miter-sills, repairing and grouting, all will be required the coming season.

Two men only have been employed during the present season at tending the gates at each lock, thereby largely reducing the apparent expense; that any saving to the State has been made, however, is questioned by the fact that the gates show a want of care in handling, and their large expense would appear to warrant their being properly cared for.

Five new gates have been built and inserted, viz.: One each at lock No. 37, 39, 40, and two at 41. Eight new gates will require to be built and inserted the coming season, viz.: One at No. 38, two at 41, one at 42, one at 43, two at 44, and one at 45; and two new gates are required for the Little Falls feeder.

The aqueducts at Castle creek and Fulmer's creek require thorough repair the coming spring, the trunks of both are badly worn and have required considerable strengthening the past season; a portion of the timber to repair these structures is now on hand.

There have been built during the season the following bridges: One road bridge (iron chord), at Frankfort; one road bridge (wood chord), at Palmer's; one farm bridge (iron chord), at Mohawk, and one farm bridge (wood chord), at Stauring's. New bridges at the following points will require to be built the coming season: One farm bridge at Smith's, one at Thomas', and I should recommend a new iron bridge at the village of Frankfort, as the present structure is very poor and entirely unfit for the place.

The two repair scows have been kept in constant use during the season, but have required considerable repairing during the time, particularly the gravel scow. I recommend the building of a new gravel scow the coming winter, as it is by no means probable that the present one would last another season if kept in constant use.

The two ice breakers upon the section having been thoroughly repaired and overhauled, were made to do efficient service during last season; but both being much worn, a new one should be built the coming season.

Three new watch-houses have been built during the past season, and the others repaired. One new lock-house is required at lock 44, the present building being entirely unfit for use.

One new workshop and timber shed should be built on the section. The dam at the head of Little Falls feeder has been repaired the past season; but an entire new structure is required, the one now standing is of wood, very old and poor. Excellent stone being abundant near at hand, I would recommend the new structure to be built of stone.

The raising, repairing and strengthening towing-path, berme banks and bridge approaches have been as well attended to as the force employed would warrant. Very much, however, requires to be done, and I should recommend an increase of force the coming season for that purpose.

The cleaning of the prism of the canal, during the spring repairs, was well attended to, no delays to navigation having taken place from the inefficiency of the work performed.

The cleaning of State ditches and creeks, cutting of noxious weeds, etc., has been well performed.

### ANNUAL REPORT,

Showing the name and number of structures or works, the different heads of expenditure, and the actual cost of each, on the line of the canal under the charge of S. B. Johnson, superintendent of repairs of twenty-two miles of the Erie canal, extending from head of lock No. 34, at Mindenville, to the head of Lock No. 45 during the five months of the fiscal year ending February 29, 1876.

. 1	2	ş	4	5
STRUCTURES OR WORKS, ETC.	Whole No. on section.	Cost of new structures.	Cost of repairs of old, etc.	Total new and old.
Locks Lock tending (exclusive of oil). Oil for locks. Lock-gates Aqueducts Waste-weirs Culverts. Farm bridges (wood).	22 88 4 7		\$6, 154 35 2, 657 21 45 63 955 05 290 00 117 00 126 84	\$6, 154 3 2, 657 2 45 6 955 0 290 0 117 0 126 8
Farm bridges (iron)	88		1, 463 89	1, 463 8
Tow-path bridges (iron). State scows Lock-houses 4. Work-shops.	2 2 8 2 11		87 10 278 63 80 00	87 1 273 6 80 0
Watch-houses.  Raising and repairing tow-path and berme bank, not including repairs to slope walls, Cleaning on creeks.  Slope and vertical wall			978 00 870 00 218 75	978 0 870 0 218 7
Docking Breaking ice and assisting boats in consequence of ice Watching canal			483 65 1,025 88 300 00	1,025 8 800 0
Other work of consequence which does not come under either of the above heads, viz.; Sand and gravel. Building spill-way			62 50 192 50	62 50 192 50
Clerk, salary			\$15,881 98	\$15, 881 94 875 06 625 0
Total				\$16,881 9

# ANNUAL REPORT,

Showing the name and number of structures or works, the different heads of expenditure, and the actual cost of each, on the line of the canal under the charge of R. C. Petrie, superintendent of repairs of twenty-nine miles of the Erie canal, extending from head of lock No. 34, at Mindenville, to the east line of Oneida county, during the seven months of the fiscal year ending September 30, 1876.

· <b>1</b>	2	8	4	5
STRUCTURES OR WORKS, ETC.	Whole No. on section.	Cost of new structures.	Cost of repairs of old, etc.	Total new and old.
Locks. Lock tending (exclusive of oil). Oil for locks Lock-gates.	88	<b>\$</b> 3, 204 75	\$4,073 65 4,837 96 97 93 2,734 37	\$4,073 ( 4,887 ( 97 ( 5,939 )
Aqueducts Waste-weirs Culverts Bridges, all kinds	6 7 10 53	2, 467 95	619 38 272 25 2, 362 09	1, 019 8 272 9 4, 880 (
State scows. Ice-breakers Lock-houses Work-shops.	2 8 2		239 15	289
Watch-houses. Raising and repairing tow-path and berme bank, not including repairs to slope walls, Cleaning out bottom of canal during spring	·/······	72 00	2,505 09	72 ( 2,505 (
repairs. Cleaning on creeks. Dams (feet). Slope and vertical wall.			1,828 55 242 88 672 20 2,153 75	1, 828 8 242 8 672 2 2, 153 7
Docking Watching canal Tools, including shovels, picks, crowbars, axes, etc			1, 095 09 820 00 158 20	1, 095 ( 820 ( 158 s
Other work of consequence which does not come under any of the above heads, viz.: Cutting noxious weeds			181 25	181 9
		\$6, 144 70	<b>\$24, 343</b> 79	<b>\$30, 488</b> 4
Clerk's salary Superintendent's salary	•	••••••		525 ( 875 (
Total	•••••			\$31,888 4

### 2. Miscellaneous.

Land damages, Frankfort (\$347 and \$107)..... \$454 00

### SECTION 5, ERIE.

Five months — October 1, 1875 to March 1, 1876.

GILES HAWLEY, Superintendent.

Annual report by G. Hawley, Superintendent of repairs on section No. 5, Erie canal, extending from head of lock No. 45 at Frankfort, N. Y., to the east bank of Oneida Lake canal at Higginsville, a dis-

tance of thirty-four miles, for the five months between 1875, and February 29, 1876, being amount expended by the present fiscal year and not hitherto reported:	
There has been expended for blacksmithing on lock No.	
46, at Utica, for slight repairs	<b>\$</b> 8 <b>20</b>
For tending the same lock up to close of navigation	351 98
Expended for oil, lamps, glass, wicks, and repairs to	13 40
lamps, same lock  For repairing gates of same lock and weigh-lock and	15 40
completing new gates for the same	123 95
The aqueduct at Oriskany has been partially completed,	
including timber and plank, at an expenditure of	3,394 51
There has also been expended for slight repairs to the	
waste-weirs and feeders	<b>13</b> 00
The culverts at Frankfort, Starch Factory creek, and	
on the west end of section were in a very bad con-	
dition, and had to be repaired in order to prevent	295 60
damage by the fall floods, at an expense of Slight repairs have been done to the weigh-lock in	200 00
Utica, amount	4 02
Doxtater Avenue bridge (112 feet span) has	
been erected, including filling, approaches	
at a cost of\$1,064 00	
Evans' new farm bridge 575 50	
Kingsley's new farm bridge	
New work on Potter's and others 1,050 00	
Total amount on new bridges	3,082 42
Washington street, Seneca street, Frankfort and six-	
teen others, farm and road bridges, have been over-	
hauled and repaired on section, including lumber	0 054 54
and iron, for  The State repairing scows on section (two boats) have	3,874 54
been repaired to the amount of	66 34
The new ice breaker on the section has been completed	00 01
and furnished at a cost of	400 00
Raising and repairing towing path, bridge approaches,	
and berme bank (two State scows) have cost	2,272 94
The old canal channel through the city of Rome, and	
Moyers' Creek channel at Frankfort, Stony Creek	

ditches at New London, Merriman's, and several other minor creeks and ditches on section have been		
opened and cleaned at a cost of	<b>\$3,645</b>	72
The dams on section (426 lineal feet) have been kept in		
repair and cleaned from ice at a cost of	57	25
Timber for repairs to the docks on section has been		
purchased to the amount of	<b>12</b> 0	00
The boats remaining on the section at the time of the		
"freeze up," prior to the official closing of the		
canals, were all got to their destinations, or such		
berths as they preferred, at a cost of (for breaking ice		
and assisting boats in consequence of ice)	1,256	00
Watching canal banks, cutting ice from dams, and		
tending and watching waste-weirs and feeders, has		
amounted to	1,096	<b>5</b> 0
The miscellaneous expenditures have been as follows:		
Burying dead horses\$45 00		
Telegraphing (five months)	•	
Coal for lift bridge, Utica		
Total	108	88
There has been expended for attending lift bridge in		
Utica	240	00
Superintendent's salary	625	00
Clerks	375	00
Total	\$21,425	25

### SUMMARY STATEMENT.

STRUCTURE OR WORK.	New.	Old.	Totals.
Locks Lock tending Lock tending Oil for locks. Lock-gates Aqueducts Waste-weirs and feeders Culverts. Weigh-lock Bridges, all kinds State scows. Lee breakers. Raising and repairing tow-path and berme bank. Cleaning creeks and State ditches Dams Docking. Breaking ice and assisting boats Watching canal, dams and feeders Miscellaneous. Tending lift bridge, Utica	\$3, 394 51 8, 082 42 400 00	\$8 20 351 98 13 40 123 95 13 00 295 60 4 02 8, 874 54 66 34 2, 272 94 8, 645 72 57 25 1, 256 00 1, 096 50 1, 096 50 1, 096 50	\$8 35 351 98 13 44 123 98 8, 894 51 13 00 295 66 4 400 6, 956 98 66 34 400 00 2, 273 99 8, 645 73 120 00 1, 256 00 1, 096 50 1, 096 50 1
	\$6,996 90	\$18,428 32	\$20, 425 25
Superintendent's salaryClerk's salary			6 <b>2</b> 5 00 875 00
Totals			\$21,495 %

Rome, N. Y., February 29, 1876.

# GILES HAWLEY,

Superintendent of Repairs.

# 2. Drafts on Auditor.

Utica, work done under supervision of Horatio Seymour, Jr., in spring of 1875	\$17,219	00
Permanent improvements, section 5, Erie canal: Award of Canal Board, under chapter 55, Laws of 1870,	411	00
, , , , , , , , , , , , , , , , , , , ,		

### 3. Miscellaneous.

Utica, work, spring 1875, under H. Seymour, Jr	<b>\$346</b> 6	<b>32</b>
Land damages (\$33.39 and \$46)	79 8	39

### II. EXTRAORDINARY REPAIRS.

Removing wall-benches from, 1, Sluice, east of Kast's bridge to Nourse's cut; and, 2, from Frankfort lock to section 102, final......

\$2,500 00

# SECTION 1, CHAMPLAIN CANAL.

# D. F. Wetsel, Superintendent.

Report of the expenditures on section 1, Champlain canal, for the five months ending March 1, 1876:

Locks. — There was stone delivered and prepared		
for use, and materials furnished for the raising of Sara-		
toga guard-lock, and materials furnished for the repairs		
of Sloop-lock, Troy; also, repairs made to Becker's,		
Flynn's and Waterford Two locks, at a cost of	\$2,178	70
Lock-tending. — The total cost of lock tending upon		
the section was	2,133	80
Oil for locks. — The cost for oil, glass and repairs was,	85	98
Lock-gates. — New gates have been built at Saratoga		
guard-lock, and repairs to others upon the section, at a		
cost of	1, 326	<b>06</b>
Waste-weirs. — Repairs to Searle's, Bemis Heights,		
Stillwater and Mechanicville were made, and tending		
all upon the section for the year, at the cost of	531	00
Bridges. — The rebuilding of bridge at Waterford		
side cut and repairs to others upon the section, includ-		
ing repairs to abutments and approaches, created an	•	
expense of	2,024	<b>39</b>
Tow-path and Berme Bank. — It has been necessary		
to raise the tow-path in places which, together with		
repairs at several points, has cost the sum of	2,409	60
Vertical Wall. — A vertical retaining wall was rebuilt		
at Cohoes bridge at a cost of	384	<b>5</b> 0
Docking. — The docking at Sloop-lock, Troy, was	•	
rebuilt, and general repairs made at Waterford, Mechan-		
icville and Hudson River docking, at a cost of	4,836	<b>5</b> 3
Breaking Ice. — There was expended for breaking		
ice and assisting boats in consequence of ice, the sum of,	1,423	95
Watching Canal. — The cost of watching canal banks,		
and watchmen upon the section amounted to the sum of,	575	00
Assisting Navigation. — There was paid for assisting		
navigation the sum of	<b>24</b> 0	00
Miscellaneous. — Miscellaneous expenses, telegraphs,	•	
printing abstracts, etc., were	195	51

Unpaid Accounts.—There was remaining unpaid on previous report the sum of (they were all subse-	•	
quently paid and settled)	\$639	94
Clerk Hire. — Paid for clerk labor	375	00
Superintendent's Salary. — Paid superintendent for		
services	625	00
Making total of	<b>\$</b> 19,984	96

D. F. WETSEL.

### REPORT,

Showing the name and number of structures or works, the different heads of expenditure, and the actual cost of each, on the line of the canal under the charge of D. F. Wetsel, superintendent of repairs of thirty-one miles of the Champlain canal, extending from 200 feet north of Cohoes guard-lock, to foot of first lock north of Saratoga dam, also Troy dam and Pond above, a distance of thirty-one miles, during the five months ending February 29, 1876.

1	2	3	4	5
STRUCTURES OR WORKS, ETC.	Whole No. on section.	Cost of new structures.	Cost of repairs of old, etc.	Total new and old.
Locks Lock tending (exclusive of oil). Oil for locks Lock-gates. Waste-weirs. Bridges of all kinds. Tow-path and berme-bank Vertical wall Docking Breaking ice and assisting boats in consequence of ice Watching canal Assisting navigation Miscellaneous Unpaid account. Clerk hire Superintendent's salary			\$2, 178 70 2, 183 80 85 98 1, 326 06 651 00 2, 024 39 2, 409 60 384 50 4, 836 53 1, 423 95 575 00 240 00 195 51 639 94 875 00 625 00	\$2, 178 70 2, 133 80 85 98 1, 326 06 1, 326 06 2, 024 39 2, 409 60 384 50 4, 836 53 1, 423 95 575 00 240 00 195 51 639 94 375 00 625 00

# SECTION 1, CHAMPLAIN CANAL.

James Dougrey, Superintendent (seven months).

Limit of Section. — This section extends from a point 200 feet north of Cohoes guard-lock to foot of first lock north of Saratoga dam; also Troy dam and pond above, a distance of thirty-two miles.

Structures. — The structures upon the section are eleven lift-locks; one weigh-lock; thirty-nine lock-gates; one aqueduct; eleven wasteweirs; seven culverts; forty-three farm bridges; two road bridges

(iron); thirty-two road bridges (wood); eight tow-path bridges; eight lock-houses; eight watch-houses; three store-houses; two work-houses; ten foot bridges; one collector and weigh office. Three dams: Troy, 2,100 feet; Cohoes, 1,600 feet; Saratoga, 900 feet in length.

Locks.— The rebuilding of Saratoga dam rendered necessary the raising of the sides of Saratoga guard-lock, to protect the sixteenmile level from an overflow of water in the spring and fall seasons, and it was done before the opening of navigation, which, with extensive repairs to the Becker's, Hewitt's, Flynn's, Waterford Two, Waterford combined, Mohawk guard and Troy sloop-locks, cost the sum of three thousand five hundred twenty-eight  $\frac{60}{100}$  dollars (\$3,528.64).

Lock-tending.— There have been expended for lock tending four thousand eight hundred fifty-four 49 dollars (\$4,854.49).

Oil for Locks.— Oil, glass and repairs to lamps have cost the sum of one hundred and one  $\frac{0.3}{10.0}$  dollars (\$101.03).

Lock-gates.— Two new gates at Saratoga guard, two new gates at Waterford Two, four new gates for use of section, together with extensive repairs and a general overhauling in the spring to other lock-gates upon the section, have cost the sum of four thousand one hundred seventy-one  $\frac{300}{100}$  dollars (\$4,171.30).

Waste-weirs.— The waste-weirs upon the section I found in a very dilapidated condition, and they required extensive repairs. New breasts, new valves and repairs to the masonry were made, at a cost of eight hundred and twenty  $\frac{6}{100}$  dollars (\$820.50).

Culverts.— Coveville, Salisbury's and Mechanicville culverts were cleaned out and repaired, at a cost of eighty-four dollars (\$84.00).

Weigh-locks. — The Waterford weigh-lock was adjusted, and the collector's and weigh office was repaired, at a cost of three hundred and five  $\frac{38}{100}$  dollars (\$305.33).

Bridges. — New bridges have been constructed at Mors', McDonald's and Lawber's, and new floor timbers, replanking and general repairs made to all the road and farm bridges, including abutments and approaches upon the section, at a cost of five thousand five hundred and sixty-eight  $\frac{50}{100}$  dollars (\$5,568.50).

State Scows. — The State scows Crocker, Smith and Neilson were thoroughly repaired and painted, at a cost of four hundred thirty-five  $\frac{9.6}{10.0}$  dollars (\$435.96).

Lock-houses.— Repairs to Mohawk guard, Waterford Two and Flynn's lock-houses cost the sum of sixty-three  $\frac{32}{100}$  dollars (\$63.32).

Watch-houses. — A new watch-house has been built at Hewitt's, which, with general repairs to others, cost ninety-seven dollars (\$97).

Tow-path and Berme Banks.— The increased depth of water which the levels are obliged to carry renders necessary the almost continual strenghtening, raising and relining of tow-path and berme banks upon the section. There has been expended upon them during the season the sum of six thousand sixty-four  $\frac{39}{100}$  dollars (\$6,064.39).

Cleaning Canal. — To insure good navigation and give a depth of five feet of water upon the different levels, required a large outlay during spring repairs. In many places an increased width of from two to ten feet was given, and the result has been very satisfactory, as there have been no delays at those places during the summer. There was expended the sum of four thousand nine hundred forty-four  $\frac{83}{100}$  dollars (\$4,944.83).

Dams.—The Troy dam was badly damaged during the spring freshets, and the low water this summer made extensive repairs to the same necessary to keep up navigation between Waterford and Troy. The repairs were made under the direction of the division and resident engineers, and cost the sum of five thousand nine hundred ninety-one  $\frac{17}{100}$  dollars (\$5,991.17).

Slope and Vertical Wall. — I found it necessary to rebuild large portions of wall near Searle's waste-weir, at Van Wies', Bemis' Heights, Coveville, and on a long portion of the four-mile level, to give good navigation during the season. That, with extensive repairs at Bullard's Bend, Schuylerville aqueduct, and other points upon the section, cost the sum of sixteen hundred ninety-five  $\frac{14}{100}$  dollars (\$1,695.14).

Docking. — Large portions of docking near Saratoga guard-lock, Bemis' Heights, Troy sloop-lock, and at Mohawk and Hudson rivers, have been rebuilt, and with general repairs and placing of timber coping on wall at many places upon the section, have cost the sum of six thousand seven hundred thirty-nine  $\frac{70}{100}$  dollars (\$6,739.70).

Breaches. — For repairing the breach in towing-path, near Gannon's, there was expended the sum of eleven hundred thirty-three  $\frac{37}{100}$  dollars (\$1,133.37).

Watching Canal. — To guard against breaches and maintain the tow-path in good order, competent watchmen and laborers have been employed at a cost of three thousand forty-six  $\frac{100}{100}$  dollars (\$3,046.12.)

Assisting Navigation. — There has been paid for assisting naviga-

tion on two-mile level the sum of three hundred and seventy-five dollars (\$375).

Miscellaneous. — There has been expended for: Taking inventory, forty-six  $\frac{40}{100}$  dollars; telegraphs, printing, abstracts, etc., one hundred ninety  $\frac{85}{100}$  dollars (\$190.85); raising sunken lime boat, eighty-eight  $\frac{40}{100}$  dollars (\$88.40).

Clerk Hire. — Paid for clerk labor, five hundred and twenty-five dollars (\$525); paid for superintendent's salary, eight hundred and seventy-five dollars (\$875).

Total......\$51,745.44

RECAPITULATION.		
Locks	\$3,528	64
Lock-tending	4,854	<b>49</b>
Oil for locks	101	03
Lock-gates	4,171	<b>3</b> 0
Waste-weirs	820	<b>50</b>
Culverts	84	00
Weigh-locks	305	33
Bridges	5,568	<b>50</b>
State scows	435	96
Lock-houses	63	32
Watch-houses	97	00
Tow-path and berme bank	6,064	39
Cleaning canal	4,944	83
Dams	5,991	17
Slope and vertical wall	1,695	14
Docking	6,739	70
Breaches	1, 133	37
Watching canal	3,046	<b>12</b>
Assisting navigation	375	00
Taking inventory	46	<b>4</b> 0
Raising sunken lime boat	88	<b>40</b>
Telegraphs, freights and publishing abstracts	190	85
	\$50,345	44
Clerk hire		00
Superintendent's salary		
Total	\$51,745	44

Breaches. — A breach occurred on the sixteen-mile line, near Gannon's bridge, which required about twenty-four hours to repair.

Evidence shows that the bank was maliciously cut through by some unknown persons.

Sunken Boats. — There have been three sunken boats upon the section. They occasioned but short delays to navigation.

Delays to Navigation. — There have been no delays to navigation, except that caused by breach and short delays, caused by sunken boats and low water in the Mohawk river.

Depth of Water. — At least a depth of five feet of water has been maintained upon the lower miter-sill during the season.

Locks. — The side walls of the upper lock of Waterford Two has settled in, so that it is with difficulty large-sized boats have been able to pass; at least, one of the walls will have to be relaid before opening of navigation.

The wooden guard-lock at Mohawk river should also be rebuilt, although of not as much importance as the upper lock at Waterford Two, as large boats can go into the river at Waterford.

Troy sloop-lock is also greatly in need of thorough repairs — in fact should be rebuilt. The other locks, with the usual spring repairs upon them, will be in good condition.

Lock Gates. — New gates should be placed in Troy sloop-lock. The old ones are very insecure and are liable to give out at any time; also, new gates at Mohawk guard and Waterford combined. New valves should be placed in Waterford combined, Waterford weighlock and Flynn's and Becker's lock-gates. They have become so worn that there is a large wastage of water around them.

Aqueduct. — The Schuylerville aqueduct foundation has washed out and the planking has become so torn up as to be insecure. It will require repairs at once to insure the safety of the structure.

Waste-weirs. — Wilbur's Basin waste-weir is in an unsafe condition; it should be immediately repaired. Stillwater and Coveville waste-weirs are very old and should be rebuilt. Searle's and Northumberland waste-weirs should be overhauled and cut-offs put in.

Culverts. — Mechanicville culvert should have the masonry overhauled, and Salisbury's, Powers and Coveville culverts will require the usual spring repairs.

State Scows. — The State scows upon the section have not capacity enough to be used for any thing but repair boats. They should have capacity enough to boat gravel and stone to the different portions of

the section. A new boat is much needed, with a capacity of 100 tons, and I would recommend that one be built before the opening of navigation next spring.

Bridges.— New bridges must be built at Lansing's, Sears', Fisher's, Smith's and Van Wie's. The bridges should be generally repainted. The abutments and approaches will require considerable repairs.

Ice Breakers. — There are no ice breakers now upon the section. I have made preparations to build one during the present month, so as to be ready for the ice.

Lock-houses. — The lock-houses are in fair condition, and will only need general repairs.

Workshops. — The workshops are old and in every way unsuitable for the purposes intended by their projectors. I have been obliged to hire a general shop during the season.

I would recommend that a new shop be constructed at some point, more central than Schuylerville or Waterford.

Cleaning Canal. — The prism of the canal was very thoroughly bottomed out during the spring repairs, and unless there should many bars form during the time the water is out of the levels, a large portion of the expense of removing will be obviated. There are many places, however, where it is impossible for large-sized boats to pass each other, and some of them, in any event, should be widened before the opening of navigation.

Dams. — The Saratoga and Mohawk river dams are in good condition. The Troy dam may require some repairs after the spring freshets.

Slope and Vertical Wall. — The new slope and vertical walls upon the section were accepted in what would seem an imperfect condition. They have fallen into the canal in many places, and require and receive repairs beyond what might seem necessary to an ordinary observer. The old wall bottoms being above the bottom of the canal are continually giving out, and require constant care and attention. They will require extensive overhauling and rebuilding before the opening of navigation.

Docking.—I found upon my accession to the office of superintendent that the docking and timber coping was in a very dilapidated condition, and I have been obliged to make a large outlay of material and labor to keep it in a safe condition.

The docks at Hudson and Mohawk rivers require raising and

rebuilding, and it will be necessary to keep laborers constantly at work replacing the timber coping along the section.

It would be a saving of money to the State if it was entirely removed and the old plan of sodding be returned to.

### JAS. DOUGREY, JR.,

Superintendent of Canal Repairs, Section 1, Champlain Canal.

# 2. Drafts on Auditor.

Legal services before Canal Appraisers	\$117	50
3. Miscellaneous.		
Repairs to Waterford weigh-lock	<b>\$</b> 55	00
Land damages, Schuylerville break	203	00
Legal expenses before Canal Appraisers, subpænaing		
witnesses	492	<b>5</b> 0
Agents to assist navigation	325	00
II. EXTRAORDINARY REPAIRS.  1. Drafts on Auditor.  Engineering Champlain enlargement	<b>\$11,300</b>	00
2. Miscellaneous.		
Engineering	<b>\$</b> 1,134	00
III. AWARDS OF CANAL APPRAISERS. Bridget Graham	\$1,947	00
DDD o D.M.		

### REPORT,

Showing the name and number of structures or works, the different heads of expenditure, and the cost of each, on the line of the canal under the charge of George Conery, superintendent of repairs of twenty-four miles of the Champlain canal, extending from the Hudson river to Dunham's basin, including the Glen's Falls feeder, from September 30, 1875, to February 29, 1876.

1	4	- 5
Structures or works, etc.	Cost of repairs of old, etc.	Total new and old.
Locks	<b>\$</b> 355 <b>57</b>	<b>\$</b> 355 <b>57</b>
Lock tending (exclusive of oil)	<b>2,</b> 500 00	2,500 00
Oil for locks	55 59	<b>5</b> 5 <b>5</b> 9
Lock-gates	1,041 45	1,041 45

,				
Structures or works, etc.	Cost of re of old,	epairs etc.	Total new old.	and
Aqueducts and sluices	<b>\$5, 548</b>		\$5,548	25
Waste-weirs	42	<b>23</b>	42	<b>23</b>
Farm bridges (wood)				
Farm bridges (iron)				
Road bridges (wood) Of all kinds,	160	KO	169	ΚŊ
Road bridges (iron)	169	30	109	90
Tow-path bridges (wood)				
Tow-path bridges (iron).				
State scows	104	<b>2</b> 8	104	28
Ice breakers	68	<b>63</b>	68	63
Lock-houses	141	<b>95</b>	141	95
Workshops	224	70	<b>224</b>	70
Timber sheds	274	28	<b>274</b>	28
Raising and repairing tow-path and				
berme bank, not including repairs to				
slope walls	1,961	71	1,961	71
Dams (feet)	26	<b>4</b> 0	26	<b>4</b> 0
Docking	241	31	<b>241</b>	31
Breaking ice and assisting boats in con-				•
sequence of ice	863	30	863	30
Watching canal	1,416	00	1,416	00
Tools, including shovels, picks, crow-		•		
bars, axes, etc	70	01	<b>7</b> 0	01
Other miscellaneous expenditures: Pub-				
lishing abstracts	53	38	53	38
Other work of consequence which does				
not come under any of the above				
heads, viz.: Picking up and taking				
care of tools, etc	57	85	57	85
Unpaid accounts	403		403	53
General and scow foreman, and measure				
boats and tending waste-weir	548	33	<b>54</b> 8	33
-				
	<b>\$</b> 16, 368	25	<b>\$16, 368</b>	25
Clerk hire		===	375	00
Superintendent's salary		• • •	625	
T				
			\$17,368	25
			<del></del>	===

### SECTION 2, CHAMPLAIN CANAL.

### GEORGE SHANNON, Superintendent.

Section 2, Champlain canal, extends from foot of first lock north . of Saratoga dam to a point thirty-three feet south of road bridge at Dunham's basin, including the Glen's Falls feeder, feeder dam and pond above, a distance of twenty-four miles.

The structures on the section are: Eighteen lift-locks, one guard-lock, sixty-nine lock-gates, three aqueducts, six waste-weirs, eight culverts, nine sluiceways around locks, seventeen farm bridges (wood), twenty-three road bridges (wood), one road bridge (iron chords), five road bridges (iron), three change bridges (wood), twenty foot bridges (wood), two State scows, one collector's office, two ice breakers, one spill-way, four lock-houses, one workshop, thirteen watch-houses, one timber shed, one stone and timber dam, 900 feet long.

### Locks.

The wing walls to lock No. 12 have been relaid and new apron and miter-sill put in; new culvert put in five combined, and the two upper locks pointed with cement, and slight repairs to all the other locks on the section, at a total cost of \$1,312.26.

# Lock-tending.

The total cost of lock-tending was \$6,200.

# Oil for locks.

The cost of oil, glass and repairs to regulation lamps was \$153.50.

# Lock-gates.

Four new gates have been built which, with the general and necessary repairs to the others, cost \$1,710.53.

# Aqueducts.

There has been a new trunk put in Fort Miller aqueduct, and Moses Kill and Fort Edward aqueducts have been repaired. Total cost, \$441.98.

#### Waste-weirs.

Rebuilding Fort Miller waste-weir and repairing the others on the section were done at an expense of \$456.94.

# Bridges.

Whitehall road and change bridge in Sandy Hill, Clark's road bridge on Glen's Falls feeder, and change bridge on one-mile level, have been rebuilt, and, with raising, replanking and the necessary repairs, including abutments and approaches to the others on the section, have cost \$3,662.55.

#### State Scows.

The State scow Saml. J. Tilden, being worthless, was obliged to dock her three times (she having sunk), and, with slight repairs to scow Adin Thayer, cost \$158.30.

# Collector's Office.

Painting Fort Edward canal collector's office inside, and, with slight repairs, cost \$23.93.

### Watch-houses.

There has been one new stove and fixtures purchased, and this, with repairs to others, has cost \$23.15.

# Assisting Navigation.

Removing sunken boat and large sand-bar on Glen's Falls feeder cost \$138.25.

# Mowing Eel-grass.

The eel-grass was mowed in Glen's Falls feeder, at a cost of seventyone dollars.

# Sluice-ways around Locks.

The sluice-way around lock No. 12, Glen's Falls feeder, has been rebuilt, and sluice-way around five combined, commenced by Superintendent Conery, has been finished, and crib constructed and filled with stone between head of locks and bulk-head, and 100 lineal feet vertical wall, in cement, on berme bank, to protect the same, and apron loaded with stone at foot of sluice, with repairs to all other sluice ways on section, cost \$2,913.86.

# Tow-path and Berme Bank.

The tow-path and berme bank on two, one, three, five and twelve mile levels and Glen's Falls feeder have been raised and strengthened at a cost of \$4,326.60.

# Cleaning out Bottom.

The prism of the canal on this section was thoroughly cleaned, and large sand-bars removed from Glen's Falls feeder and twelve, five and three-mile levels, including wheelbarrows, shovels, etc., at a total cost of \$5,681.05.

#### Dams.

The log-way in Glen's Falls Feeder dam has been repaired, costing twenty-six dollars and ninety-one cents.

# Vertical and Slope Wall.

Constructing vertical wall, in cement, on tow-path side, from head five combined, Glen's Falls feeder, north 200 feet; fifty feet at aqueduct in Fort Edward, and at Taylor's basin, and repairing wall on five and twelve-mile levels, and slope wall on Glen's Falls feeder; cost, \$1,216.92.

### Docking.

Constructing dock on one-mile level, and repairs to docking on twelve, five and one-mile levels, cost \$289.65.

#### Breaches.

Two small breaks have occurred on this section the past season. August twentieth, breach at the wall on berme side of Fort Miller aqueduct. The bank here is very light, and the action of the water in the creek caused the bank to give way, and but for the timely notice by lock-tender would have been of a serious nature. Navigation delayed about four hours on one-mile level only. August twenty-fourth, breach at Dunham's Basin waste-weir in tow-path, caused by water rats, and but for the watchman would have been a very bad break. No detention to navigation. Repaired at a cost of \$149.

# Stopping Leaks in Glen's Falls Feeder.

Filling seams in rock bottom on Glen's Falls feeder with concrete and gravel, and pointing vertical wall with cement to prevent the waste of water, was done at an expense of \$853.27.

# Watching Canal.

Competent watchmen have been employed over the high and dangerous embankments during the night and day-time, thus preventing any serious breaks on this section, at a cost of \$2,155.

### Miscellaneous.

Telegrams, publishing abstracts, etc., \$102.90; general foreman, \$625; clerk hire, \$525; superintendent's salary, \$875.

#### Sunken Boats.

There have been two boats sunk upon this section during the season. The Wm. Harris, loaded with lime, wedged in lock No. 13, sprung a plank and soon sunk, and burned after hauling her out. Boat Lotta at dock loading with lime, took water and was soon a fire. Hauled her to Keenan's dock and let her burn. No detention to navigation.

Delays to Navigation.

July twenty-fifth, water drawn off Glen's Falls feeder to cut eelgrass. Navigation delayed twenty-four hours on feeder, and ten hours on Champlain. August twentieth, small break at aqueduct on one-mile level. Navigation delayed about four hours on one-mile level, only.

### Depth of Water.

At least five feet of water have been maintained on each and every level on the section the past season.

# Structures necessary to be Rebuilt and Repaired.

The sluice-ways around locks Nos. 5 and 13, Glen's Falls feeder, should be rebuilt. There will have to be a new miter-sill and apron put in Saratoga discharge-lock, which cannot be done without a coffer dam, and the dredge ought to be there in spring to take out the dam. General repairs to all other locks on section. The sides to lock No. 12, Glen's Falls feeder, are badly sprung, and the berme side at upper end has settled six inches the past season, and leaks very badly. cannot say what may have to be done to it before resuming navigation in the spring. There will have to be two tumble-gates built this winter, and inserted before navigation opens — one at Moses Kill lock, and one at Fort Miller lock; two new lock-gates at Moses Kill, and four at Fort Edward lock, and general repairs will be required to all other gates on the section: Bell's, Howe's and Pike's (covered), School-house, Brisbin's, Hunt's, Fort Miller (road and change), Mudget and Coleman's road bridges and abutments will have to be rebuilt, and the abutments will require to be relaid at Baker's, Durkee's and Potter's farm bridges, and Potter's bridge should be rebuilt. The tow-path at Moses Kill aqueduct will have to be rebuilt.

GEORGE SHANNON,

Superintendent.

### REPORT,

Showing the name and number of structures or works, the different heads of expenditure, and the cost of each, on the line of the canal under the charge of Geo. Shannon, superintendent of repairs of twenty-four miles of the Champlain canal, extending from foot of Saratoga discharge lock to Dunham's basin, including Glen's Falls feeder, during the seven months ending September 30, 1876.

STRUCTURES OR WORKS, ETC.   Section.   Structures.   Str	STRUCTURES OR WORKS, ETC.   On   Section.   Cost of new   repairs of old, etc.   and old.	- 1	2	3	4	5
Lock tending (exclusive of oil)	1   10   10   10   10   10   10   10	STRUCTURES OR WORKS, ETC.	on		repairs of	Total new and old.
State scows   2   158 30   15   15   15   15   15   15   15   1	158 80   158   1	il for locks ook-gates queducts queducts surverts ulverts ulveres ulve	69 3 6 8 9 17 24 5	\$625 50 300 00 2,600 00	6, 200 00 153 50 1, 085 03 441 98 156 94	\$1, 812 26 6, 200 00 163 50 1, 710 58 441 98 456 94 2, 913 86
Raising and repairing tow-path and berme bank, not inctuding repairs to slope walls, Cleaning out bottom of canal during spring repairs. 5,681 05 5	Stating and repairing tow-path and berme   bank, not including repairs to slope walls, leaning out bottom of canal during spring repairs.	iate scows : Sollector's office ce breakers pill ways ock-houses Work-shops Watch-houses !! I'mber sheds	2 1 2 1 4 1 13		23 98	158 30 23 90 23 14
Manifester and assessment of the contract of t	Iowing eel-grass     71 00     71 26       Aunfs (feet, 900)     1     26 91     26       lope wall     1,100 00     116 92     1,216       locking     150 00     139 65     289       kepairs of breaches     149 00     149     149 00     149       stopping leaks in Glen's Falls feeder     853 27     853       watching canal     2, 155 00     2, 155       beneral foreman     625 00     625       Other miscellaneous expenditures     102 90     102       \$7, 253 40     \$25, 439 15     \$32, 692	daising and repairing tow-path and berme bank, not including repairs to slope walls, Eleaning out bottom of canal during spring			4, 326 60	4, 326 6
Dam's (řect, 500).     1     26 91       Slope wall     1,100 00     116 92     1,       Docking     150 00     139 65       Repairs of breaches     149 00	Watching canal. 2, 155 00 2, 155 00 625 00 6	Mowing eel-grass Dams (feet, 900) Blope wall Docking Repairs of breaches	1	150 00	71 00 26 91 116 92 139 65	71 00 26 9 1,216 9 289 6 149 0
Watching canal       2,155 00       2,         General foreman       625 00       0         Other miscellaneous expenditures       102 90		Watching canal			625 00 102 90	2, 155 0 625 0 102 9

October 25, 1876.

# GEORGE SHANNON,

Superintendent.

2. Drafts on Auditor. Fort Edward Feeder bridge, timber, etc	\$473	45
II. Awards of Canal Appraisers.	<b>\$</b> 206	65

# CHAMPLAIN CANAL, SECTION No. 3.

# JOHN W. INGALLS, Superintendent.

This section extends from Dunham's basin to Lake Champlain, a distance of twenty-one miles. The structures upon this section are eight locks, twenty-six lock-gates, seven waste-weirs, three culverts, twenty-one farm bridges (wood), five road bridges (wood), four road bridges (iron), three tow-path (change) bridges (wood), four foot bridges, two State scows, five lock-houses, two workshops, two timber sheds, four dams, one spill-way, and one collector's office.

Locks. — Repairs were made on locks at Whitehall	
and Fort Ann. A new miter-sill was laid at upper com-	
bined Fort Ann, others repaired and strengthened, leaks	
stopped, and a thorough cleaning out of bottom and	
wells of all the locks, at a cost of	<b>\$</b> 613 <b>3</b> 6
Oil for Locks	/ 24 45
Lock-tending.— The lock-tenders (thirteen) employed	
have been good men, who understood their duties, and	
did them faithfully and well; cost	3,642 67
Lock-gates No new gates have been inserted this	
year. Sixteen new gates have been built and pinned	
together; new balance beams framed. The gates in	
use were all put in good repair, and have been kept in	
good order; total cost	1, 567 41
Waste-weirs. — The waste-weirs on the whole section	
have been new planked, cased and strengthened with	٠
braces of timber, bolted, etc.; cost	253 35
The rebuilding of the masonry work, and a general	
overhauling of the Empey weir on twelve-mile level,	
are recommended.	
Culverts. — The culverts have all kept their shape,	
and are in good repair; cost of repairs	80 <b>20</b>
Bridges. — Nearly all the bridges on this section	
have had more or less repairs, with new plank, beams,	
braces and new chords; the approaches have been kept	
lined. No bridges have fallen or been knocked down	
this year. A new change bridge has been built and	
erected on Wood creek, at Fort Ann, and new change	
bridge built on five-mile level, near guard-lock; total cost	1,214 45
·	

State Scows. — Two State scows have been employed boating gravel, sandstone and earth for general repairs to the section; cost of repairs on scows	<b>\$</b> 187	59
Lock-houses. — The lock-houses on this section are in		
good repair and comfortable, with stoves and pipe.		
Workshops. — The workshops are in good repair.		
Timber Sheds. — The timber sheds are all right.		
Tow-path. — There has been a large amount of labor done on the tow-path this year to put it in a safe con-		
dition and fine repair. It is now above high water, and	•	
well graveled and graded the entire length. The berme		
bank has also been raised and strengthened with dirt		
and gravel; total cost	7,748	15
Cleaning out Bottom. — The bottom of canal and		
creek has been thoroughly cleaned. All bars and other		
obstructions removed; the five-mile level was widened		
on berme bank eight feet, one and a-half miles during		
spring repairs. No boats have wedged or got aground		
on this section this year. Baldwin's bend and Bailey's		
bend on twelve-mile level were cut off and widened;		
total cost	3,414	<b>2</b> 0
Dams. — Considerable work has been done in repair-		
ing the dams on Wood creek, new planking, etc.; total	0.4	٠.
cost	34	<b>5</b> 0
Slope and Vertical Wall. — The old walls were		
thoroughly repaired and new ones built during spring repairs. 200 yards new slope wall was built around		
Baldwin's bend, and 100 yards new slope wall built at		
Bailey's bend on twelve-mile level; about 150 yards		
new protection wall was laid at Smith's basin; total cost,	907	49
Docking. — A new dock stick has been placed on		
the wall (berme side) through the village of Whitehall		
1,000 feet in length, and new top sticks put on wall		
along the whole section where needed; total cost	386	90
Breaches. — No breaches have occurred, nor has		
there been any delay to navigation, whatever, on this		
section this year.		

Breaking ice and assisting boats in consequence of ice		
cost	<b>\$</b> 366	00
Watching Canal. — Competent and reliable men		
have been employed to watch and guard against breaks		
and leaks, regulate the water and assist navigation, at		
a cost of	1,574	<b>32</b>
Tools, etc. — The wheelbarrows and tools, including		
shovels, picks, axes, etc., cost	242	88
Scow Foreman. — Scow foremen have been employed		
at a cost of	, <b>65</b> 0	00
Special Foreman.—Special foremen have been		
employed at a cost of	881	83
Depth of Water. — At least a depth of five feet of		
water has been maintained upon the lower miter-sills	•	
during the season, except the lower miter-sill at White-		
hall, which has eight feet of water.		
Miscellaneous. — Other miscellaneous expenditures		
were	<b>2</b> 62	<b>4</b> 5
Clerk Hire. — Paid for clerk hire	900	00
Superintendent's Salary. — One year's services	1,500	00
Total twelve months	<b>\$26,452</b>	20

This section is now in good condition, and, without unforeseen accidents, ought to be kept in good repair the next year much more cheaply than this; there will be no new gates to build nor new bridges, and the tow-path is in such good shape that it will require less expense to keep it in good order and repair.

# ANNUAL REPORT,

Showing the name and number of structures or works, the different heads of expenditures and the cost of each, on the line of canal under the charge of John W. Ingalls, superintendent of repairs of twenty-one miles of the Champlain canal, extending from Dunham's basin to Lake Champlain, during the twelve months ending September 30, 1876.

STRUCTURES OR WORKS.	Whole No. on section.	.Cost of new.	Cost of repairs of old.	Total.
Locks. Oil for locks Lock tending Lock tending Lockgates. Waste-weirs Culverts Bridges. State scows. Raising and repairing tow-path. Cleaning out bottom Dams. Slope and vertical wall. Docking Breaking ice and assisting boats. Watching canal Tools, etc. Scow foremen. Miscellaneous expenditures.	26 7 3 33 2 2	\$1, 224 41 761 92 600 00 150 00 242 88 \$2, 979 21	\$613 86 24 45 8, 642 67 343 00 253 35 80 20 452 53 187 59 7, 748 15 3, 414 20 307 49 236 90 366 00 1, 574 32 650 00 2, 851 83 262 45	\$613 24 3, 642 1, 567 253 80 1, 214 187 7, 748 3, 414 3, 414 4, 907 386 1, 574 650 881 242 650
Superintendent's salaryClerk's salary				1,500 900
Total expenditures for twelve months		• • • • • • • • • • • • • • • • • • • •		\$26, 452

# 2. Drafts on Auditor.

Milo Johnson, commutation for farm bridge...... \$700 00

### II. EXTRAORDINARY REPAIRS.

### 1. Drafts on Auditor.

division, enlargement survey \$7	81	22
Enlargement Champlain, sections 2440 to 2600, second		
division, enlargement survey	53	<b>4</b> 0

### BLACK RIVER CANAL.

# SAMUEL F. GARMON, Superintendent.

The structures on this canal are the same as in my preceding report. The annexed schedule shows the cost of work done from October 1, 1875, to April 1, 1876, when the Black River canal was transferred from the eastern to the middle division.

General repairs were made on the locks and lock-gates during October and November, and the locks well braced after the close of navigation.

New lock-gates were inserted at locks Nos. 28, 33, 41, 44 and 57, one at each.

The sluices at locks Nos. 25, 45, 48, 50, 60, 66, 68, 80, 86, 106 and 107 were repaired in October.

Floyd Hill, Westernville, North-western, Delta feeder, Dominick street road bridges, Tiffany's and Illingsworth's river bridges, were repaired by replanking and fixing approaches; Pitcher's and Owens' farm bridges were thoroughly repaired in October.

The towing-path was raised at locks Nos. 16, 17, 24, 25, 29, 30, 31, 33, 35, 44, 51, 52, 61, 77, 102, and a portion of the feeder relined with gravel.

In December repairs sufficient to prevent accident were made to the Delta Feeder dam at an expense of about seventy dollars.

The spill-way of the dam at South Lake reservoir was cleaned out in December (it being filled with fallen trees, etc.), and the gates received slight repairs.

Four keepers were employed at the reservoirs during the six months.

In December Beaver river and Tiffany's bridges were replanked. No boats were sunk on the canal during the fall so as to delay navigation, and the canal is in good order for next season.

> S. F. GARMON, Superintendent.

# Superintendent's expenditures for six months ending April 1, 1876.

1	2	8	4	5
STRUCTURES OR WORKS, ETC.	Whole No. on section.	Cost of new structures.	Cost of repairs of old, etc.	Total new and old.
Locks Lock tending Lock gates. Aquednots Waste-weirs Bridges State scows State scow foreman Under-water excavators Under-water excavator engineer Raising and repairing tow-path and berme bank Dams Watching canal		\$985 47	\$209 00 2,703 14 1,088 54 40 00 698 70 3 00 82 50 83 00 165 00 - 895 60 170 78 224 25	\$209 00 2, 703 1: 2, 024 0: 321 7: 40 0: 1, 196 9: 82 5: 83 0: 165 0: 895 6: 170 7: 234 2:
		\$1,441 65	\$6,690 29	
Special foremen Reservoir keepers Messenger to reservoir and repairs. Miscellaneous Clerk hire. Superintendent's salary.			• • • • • • • • • • • • • • • • • • • •	1, 325 0 291 0 124 2 450 0
				\$11,872 2

# S. F. GARMON,

Superintendent.

# 2. Miscellaneous.

Services and expenses of agents	<b>\$4</b> 50	00
II. Extraordinary Repairs.		
Tree dam, Moose river, \$553.96, and additional allowance under resolution of Canal Board July 6, 1876,		
<b>\$</b> 6 <b>4</b> 0	<b>\$</b> 1,193	96
III. Awards of Canal Appraisers.		
Garrett Ives	<b>\$</b> 37	17
Frances Ives	35	30

TABLES.

Table of distances on the Eastern Division of the Erie canal and length of the different levels.

tengin of the air	1	·		
BETWEEN LOCKS.	Length of level.	Total distance of upper lock from lock i.		
	Chains.	Chains.	Miles.	
1 — 2		98.83	1.234	
2 — 3		518.44	6.480	
3 — 4	25.20	543.64	6.795	
4 — 5		565.56	7.069	
5-6		582.04	7.275	
6-7	. 10.64	592.68	7.409	
7 - 8	. 12.88	605.56	7.569	
8 — 9	. 26.56	632.12	7.901	
9 — 10	. 14.56	646.68	8.083	
10 — 11		659.56	8.244	
11-12	. 11.68	671.24	8.390	
12 — 13	16.00	687.24	8.590	
13 — 14		704.36	8.804	
14 — 15		725.88	9.074	
15-16		741.08	9.264	
16-17		766.44	9.580	
$17 - 18 \dots $		781.88	9.774	
18-19		1,490.30	18.629	
19-20		1,709.59	21.370	
20-21		1,967.49	24.594	
$21 - 22 \dots \dots$		1,981.50	24.769	
22-23		2,534.93	31.687	
23-24		2,598.00	32.475	
24-25		2,901.87	36.273	
$25 - 26 \dots \dots$		3,412.46	42.656	
26 - 27		3,428.54	42.857	
$27 - 28 \dots \dots$		3,845.70	48.073	
$28 - 29 \dots$		4,002.90	50.033	
$29 - 30 \dots $	. 50.60	4,053.50	50.673	
30-31		5,161.84 5,667.45	64.523	
$31 - 32 \dots $	•	6,076.22	70.843 75.953	
$32 - 33 \dots $		6,281.85	78.523	
$33 - 34 \dots$	1	6,536.08	81.703	
$34 - 35 \dots \dots$	•1 2.2.22	6,885.28	86.063	
35 — 36 36 — 37	*1 *1.2.22	6,934.80	86.683	
$37 - 38 \dots $		6,947.57	86.843	
38 — 39	1 4 0	6,964.92	87.063	
39 - 40		7,185.74	89.823	
40 — 41		7,396.85	92.463	
41 - 42		7,625.84	95.323	
42 — 43		7,646.43	95.583	
43 — 44.	11 111111	7,862.59	98.283	
44 — 45		7,961.21	99.518	
45 to county line.	538.67	8,499.88	106.243	
	1	-,	100.010	

Showing the lenyth in miles, number of structures, amount appropriated, amount of work done, whole amount of

of contract existing upon the Eastern 1876.		Amount paid during fiscal year.	87, 684 00 21, 557 99 71, 688 00 3, 484 00	26, 988 39 4, 183 00	21,097 00	9, 120 00	3,890 00	4.4.2. « 22.2.2.3.4 22.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.	6, 171 00 1, 207 00
		Amount remaining to be done.	* Settled. Completed. Completed.	* Settled. Completed.	Completed.	\$260 00	1,600 00	9, 700 D0 11, 520 00 Completed. 6, 700 00	8,740 00
		Total amount done.	\$50,700 00 111,197 99 491,260 00 48,180 00	65, 153 89	94, 820 00	10, 740 00	2 8	තුකුකු ල පිළුණි පිළි පුළු පුළු පුළු	8 8
		Amount done during fiscal year.	888 888 848 860 94 940 90 90 90 90 90 90 90 90 90 90 90 90 90	26, 988 39 4, 920 00	24,820 00	10, 740 00	8, 400 00	කුකුසු	1,420 00
c details tember 30	CANAL.	Appro- priation.	\$424, 360		,				
work dene and work completed or settled, with the characteristic details of contract existing upon the Eastern Division of the New York State canals, for the year ending September 30, 1876. EXTRAORDINARY REPAIRS, ERIE CANAL.	EXTRAORDINARY REPAIRS, ERI	CHARACTER OF WORK.	Vall-bench and vertical wall, junction Chenango canal Utica.  Lower lock at upper side-cut, West Troy.  Removing wall-benches, etc., from Port Schuyler to lower Mohawk aqueduct, Removing wall-benches, etc., from lower Mohawk aqueduct,	Constructing slope wall from Ferguson's aqueduct to east line, Utica, and from Potter's bridge to lock 46.  Constructing a Whipple cast-iron truss-bridge at Mohawk and Herkimer Raliroad crossing, etc.	Romoving wall-benches, etc., from a point 200 chains west of lock 32, west 100 chains.	Kemovning wall-benches, etc., from lock 29 to lock 30, eighty chains, tow-path side.  Removing wall-benches, etc., from lock 27 to lock 28, forty chains, tow-path	Removing wall-benches, etc., from lock 22 to lock 23, forty chains, tow-path aids Removing wall-benches, etc., from a point 120 chains west lock 31 to lock	82, etc.  Removing wall-benches, etc., from lock 31, west 130 chains.  Removing wall-benches, etc., from lock 30 to lock 31, twenty chains.  Removing wall-benches, etc., from lock 20 to lock 28, sixty chains.  Removing wall-benches, etc., from lock 20 to lock 29, sixty chains.	Removing wall-benches, etc., from a point 300 chains west lock 33, west 100 chains to lock 33.  Removing wall-benches, etc., in the villages of Frankfort and Ilion, thirteen chains
k dene ision of		No. of etructu's.							
wor Div		Length in miles.	0.80	1.33	1.28	8 %	26	35.85.8	1.25

STATEMENT — (Continued).

EXTRAORDINARY REPAIRS—ERIR CANAL.	CHARACTER OF WORK.  Appropriation.  Amount Amount Amount food during amount tremaining paid during facal year.	Removing wall-benches, etc., from lock 88, at Fort Plain   \$29,800 to \$29,800 to \$29,800 to Completed   \$25,800	EXTRAORDINARY REPAIRS, CHAMPLAIN CANAL.	Laure of 1873.  Laure of 1873.  230,000 \$21,100 00 \$29,000 00 * Settled. \$21,100 00	ENLARGEMENT CHAMPLAN CANAL.	arcement Champlain canal, part of section 30, and the whole of section 1, Whitehall t	Lours of 1874 (general oppropriation).       \$10,530 00       \$10,530 00       \$83,449 34       \$8,943 00         largement Champlain cenal, from station 50 to station 50 to station 190, first division.       14,800 00       14,800 00       30,838 30       15,158 00
EXTRAORD	CHARACTER OF WOR	Removing wall-benches, etc., from a point 100 che chains	BXTRAORDIN	Lane of 1873.  Rebuilding of stone, wooden lock, Glen's Falls f	RNLAR	Laus of 1870.  Enlargement Champlain canal, part of section 8 31, Whitehall †	Loues of 1874 (general approprentation of 1874 (general approprentation of to Enlargement (hamplain canal, from station 80 to Enlargement Champlain canal, from station 188 to
,	No. of structu's.						
•	Length in miles.	1.25		:		1.86	

\*Includes per centage. †This contract has been settled and paid since close of fiscal year.

#### GENERAL REMARKS.

In submitting his annual report for the fiscal year ending September 30, 1876, in compliance with the requirements of the law, the Commissioner of the eastern division is gratified to be able to state that the past year has been one of unequaled good navigation, with no delays or detentions from any source whatever, and that while this good navigation has been maintained and a great amount of work done, a large portion of which was in the nature of extraordinary repairs, rendered necessary by the unfinished contracts on the work stopped in consequence of the canal investigating movement, the result has been accomplished by an expenditure much less than in any previous year for a long period, and the canal has been permanently improved and placed in better condition than it has ever been before — the prism, the banks, the walls and all the permanent structures being in a most excellent condition, and are thoroughly approved and commended in the annual report on the canals of the State Engineer and Surveyor. Every exertion has been made to strengthen the weak places, to substitute substantial and enduring work for temporary make-shifts, the use of which has so much enhanced the cost of ordinary repairs, and thus render possible an economical administration of the canals. The most satisfactory evidence of the existing excellent condition of the canals is furnished in the careful survey made of the prism of the canal during the past season, in which the entire length of the canal in this division was cross-sectioned at intervals of four rods, and this close examination of the canal demonstrates that there exists not the slightest necessity for the expenditure of the \$400,000 appropriated by the Legislature for deepening and improving the water-way of the Erie canal.

With large expenditures for unusual and expensive purposes like the retrunking of the Mohawk aqueducts, and the construction of a large amount of wall and docking, the expenditures for the eastern division have been so largely reduced that it seems practically to settle, upon an assured foundation, the future success of the Erie canal. Not that it is destined to carry all the products of the great west to the seaboard market, nor even the larger part, but it is going to carry a large amount always, and the past year's experience settles the fact that it can be so economically administered that it can be maintained and be self-supporting, even in the most disastrous times, and unless because of unforeseen occurrences, even make its constitutional contribution to the general fund, and perhaps a quota to the

sinking fund; and as one of the great avenues of communication through which the great grain trade of the country will flow, and as regards rate of transportation a controlling factor in the great result, the Erie canal is and must be for a long time an important and most valuable tributary to the wealth and importance of the Empire State, and in a less degree to the general prosperity of the country.

The past season has been one of unexampled dullness and depression, and from a variety of causes, most of which are obvious to the most superficial observer, the business of the Erie canal shrunk to its lowest ebb. But the causes have already begun to disappear, and with the renewal of public confidence in the settlement of agitating political questions, the improved business outlook, and the absence of the depressing influences which paralyzed last season's business, would indicate a permanent and healthful revival of business which would restore the canal earnings to a respectable figure, and with the expenditures reduced to the lowest limit, would yield so large a surplus as to even silence the croakers who are always predicting the ruin of the canals, and in the face of the immense movement of products upon it, declaring that its period of usefulness has ceased. There is another feature to the question which, at least, is worthy of consideration, and that is, that inasmuch as the figures demonstrate that the railroads cannot carry grain so cheaply as the canals, it may not be possible that the railroads will have to charge remunerative rates, and thus enable the canal to resume its rightful position as the cheapest mode of transit.

The policy of the State with regard to the canals should be clearly taken and defined, and, when adopted, should be inflexibly adhered to in order to insure the best results. Conflicting legislation, part looking to the adoption of one system, and part to another, produces great confusion and embarrassment, and seriously impairs the efficiency of the canal and injures its business.

If the State wish simply to keep open the canal without expense to the people, its policy should be directed to secure the very lowest expenditure, and reduce the tolls to the very lowest figure which will yield the desired amount, and legislation and canal administration should be directed to accomplish this result. If, on the other hand, the traditional policy of making the canals not only self-supporting as regards expenses of repair and maintenance, but also in the payment and extinction of the debt created by it and for it, then, of course, the tolls should be so fixed and established that they should

yield the largest revenue, and render possible the accomplishment of this purpose, and legal enactments should carefully discriminate in this direction.

A third plan which finds advocates at this time urges the abolition of all tolls, and throwing open the canals as a great free water-way, paying the expenses of maintenance, which are to be reduced to the lowest possible scale, by a direct tax on the people. This plan is hardly likely to be immediately adopted in the present overburdened condition of the tax-payers, and whatever merits it may possess, we are not called upon at this time to discuss them. That a free, broad, open water-way would be productive of great benefit to the State no one can doubt, and all would approve, could we separate the proposition from the necessary taxation, its inevitable consequence.

#### Tolls.

Feeling that it does not become me to present or advocate any particular policy in this juncture, that being more within the province of the Legislature, yet it is my duty by the statute to make such recommendations as shall seem to me necessary for the interests of the canals, and therefore feeling convinced that the present improved condition of the canals will render their maintenance for the future much less expensive, and that with renewal of confidence in business and with its steady revival and increase, would warrant the experiment, I would not only oppose any increase of tolls, but would advocate a still farther reduction on several of the leading articles, and believe the best interests of the State would be promoted by this action. I would also strongly urge the reduction of tolls on boats one cent per mile. This measure would afford great relief, and be of great benefit to a very depressed and embarrassed class, who deserve the consideration and fostering care of the State.

### LATERAL CANALS.

There being no lateral canals on the eastern division, as now constituted, the Champlain forming a part of the main system, the Commissioner of the eastern division does not feel called upon to make any suggestions with regard thereto; and the report of the commission appointed by the last Legislature, and which will, undoubtedly, be submitted to the coming Legislature, would probably render any extended remarks unnecessary. The opinion of the Commissioner, with regard to the Black River canal, can be found in his extended detailed report on the subject, submitted through the

Canal Board, to the last Legislature and published in an appendix to the Canal Commissioners' Report for 1875 made to the Legislature of 1876.

# RAPID TRANSIT - STEAM ON THE CANALS.

Rapidity of transit and economy in expense enter so largely into the freight transportation question that the minds of forwarders and boatmen as well as inventors have been largely occupied for the past few years in devising means to secure these combined results, which all unite in ascribing to the application of steam propulsion to boats in some form or other. Progress has been made, but no practical plan has yet been developed — nothing that so commends itself to the judgment of the parties interested as to secure its immediate adoption as being the accomplishment of the desired result.

This subject has received much attention and been thoroughly treated by my predecessors, and I do not propose to enlarge upon the subject, but it is important, in my judgment, that the State should continue to assist in this great work and extend every assistance and facility to those engaged in trying to work out the practical solution of the problem that can be done without impeding or interfering with navigation. Any actual advance in this direction would be most advantageous to the future of the canals.

### SUPPLY OF WATER.

There has been no trouble whatever the past season from lack of water either on the Erie or Champlain. The supply has been ample and sufficient at all times, and, as far as this division is concerned, there would seem to be no necessity for making any further provision for a water supply.

### MOHAWK AQUEDUCTS.

The two Mohawk aqueducts were completed during the winter and brought into use at the opening of navigation and have proved most excellent work. Not only has navigation been improved by their construction but a fruitful and constant source of expense in repairs been thereby obviated.

#### CULVERTS.

The culverts at Crescent, and at the foot of the four mile level, to which attention was called in my last report, have been duly authorized by the necessary action of the Canal Board, and will be constructed during the coming suspension of navigation.

#### TROY DAM.

The Troy dam has been placed in excellent condition at an expense much less than the engineer's estimate. The other dams on the division are also in good condition.

# CHAMPLAIN ENLARGEMENT.

There is now remaining in the treasury the sum of \$300,000, which was appropriated for the enlargement of the Champlain canal, and which it has been proposed for the past year or two to expend in such a manner as shall remove the greatest obstacles now existing to its free navigation. I would strongly recommend and urge the expenditure of this sum, or so much thereof as is covered by the carefully prepared estimates of the division engineer (\$240,000), for the reason that while the capacity of the canal will be largely increased, the expense of keeping it in repair will be largely reduced. By a judicious expenditure of this money the canal can be deepened in all the necessary places, and also straightened and widened, so that boats carrying 200 tons can freely navigate its waters, and, as boats of this size are required for the river and lake navigation, connected with this canal, it will be seen at once how important to its interests are the proposed improvements. The walls and bridges, which are' in a poor and dilapidated condition on this canal, would be thus placed in good and substantial order, and the annual charge for ordinary repairs, now so heavy, would be materially lessened. All the improvements to this canal tend so largely to develop and strengthen the important iron and lumber interests of Northern New York that a sound public policy would require the adoption of the improvements recommended were no other consideration involved. As showing the business of the canal, I would call attention to the fact that, notwithstanding the depression of business, the stoppage of the Glen's Falls, Sandy Hill and Fort Edward mills, and other manufacturing establishments, the tolls on this canal only fell off \$12,000 the past season, as compared with the previous year, a remarkably good showing in comparison with the other canals of the State.

#### EXTRAORDINARY REPAIRS.

The system of extraordinary repairs having been abolished in effect by the failure to make any appropriations by the Legislature of 1875 and 1876, of course the only work done under this head of business

for the past two seasons has been the completion of work already undertaken by the means of appropriations already made. There remains very little of this work to be done, if any, and many of the contracts which were being executed, and depending on prospective appropriations, were abandoned or canceled, and the amount provided by special legislation, or were paid for out of the ordinary repair fund. In a special report to the Canal Board July 6, 1876, the Commissioner of the eastern division shows to what a large extent the ordinary repair fund had been charged in this manner, and the reason for these expenditures having ceased, of course a corresponding saving can and will be effected in the annual charges for ordinary The progress of new work and extraordinary repairs in future. repairs was always attended with increased outlay in ordinary repairs, and with this disturbing element entirely eliminated, and the canals restored for the first time to a good and efficient condition, since the dilapidation into which every thing fell under the repair contract system, there would seem to be no obstacle to a very economical administration of canal maintenance upon the eastern division.

#### · COMPARATIVE STATEMENT.

The amount expended for ordinary repairs during ending September 30, 1875, was as follows, viz.:	the fiscal ye	ear,
By superintendents	<b>\$</b> 1, 165, 249	61
For the year ending September 30, 1876:  By superintendents	1,007,359	95
Reduction in 1876	\$157,889	66
Eastern division \$322,541 86  Middle division 161,971 21  Western division 274,944 23	•	:

For 1876, as follows:	
Eastern division \$26,305 86  Middle division 52,737 44  Western division 71,787 88	
• • • • • • • • • • • • • • • • • • • •	
Reduction in 1876 \$508,626 12	\$508,626 12
Total reduction, ordinary and extraordinary repairs	<b>\$</b> 666,515 88
For the eastern division, the showing for the as follows, viz.:	same period is
Expenditures for year ending September 30, 1875	\$677,094 52
Expenditures for year ending September 30, 1876	515,27342
Apparent reduction	<b>\$161,821</b> 10
But as the Black River canal and twenty-five miles of Erie were taken from this division and added to the middle division, there should be deducted from this apparent reduction the amount expended on them this year, as follows:	·
Black River canal	
portion)	42,000 00
Actual reduction	<b>\$</b> 119,821 10
-	

Before closing my report, I take great pleasure in expressing my sense of the cordial and effective co-operation of those with whom I have had official relations during the past year. I cannot forbear expressing my warmest approval and earnest commendation of the services rendered by the able counsel who have been employed to represent the State in the matter of the claims before the Board of Canal Appraisers and the Canal Board, and the faithful, zealous and able manner in which their duties were performed is best attested by the reports of those boards showing what a trifling amount has been awarded claimants in comparison with the amounts claimed.

1 desire also to acknowledge my indebtedness to the division and

resident engineers for their efficient and cordial co-operation with me, and my thanks for their valuable and efficient services.

The superintendents upon this division have done their duty faithfully and well, and it affords me pleasure to bear witness to their fidelity and zeal, without which the successful past season would not have been possible.

I have not thought it necessary to recapitulate the improvements suggested in their several reports, but would express my approval of the recommendations so made by the superintendents.

There will be no large or unusual expenditures to be made during the coming winter to place the canal in good condition at the opening of navigation, and there will be no deficiency in the amount already provided by law for the maintenance of the canals for fiscal year ending September 30, 1877.

ADIN THAYER.

# MIDDLE DIVISION.

# COMMISSIONER'S ANNUAL REPORT FOR FISCAL YEAR OF 1876.

At a meeting of the Canal Board, on January 27, 1876, a resolution was unanimously adopted, taking from the eastern division and adding to the middle division about twenty-eight (28) miles of the Erie canal, the Black River canal, navigable part of the Black river, and the lakes, reservoirs, rivers and feeders supplying the Erie at Rome. This change it was very proper to make, as it placed under the control of one commissioner the important water system of the long summit level of the Erie canal. There are now in charge of the Commissioner of middle division the following:

The Erie canal, from the east line of Oneida county to the east line of the county of Wayne, including the several feeders; the Black River canal and feeder, and improvement of Black river and reservoirs; Oswego canal; Cayuga and Seneca canal; Cayuga inlet; Chenango canal; Seneca River towing-path; Oneida River improvement; Chemung canal and feeder; Crooked Lake canal; Oneida Creek feeder; Oneida Lake canal; Baldwinsville canal; making in all about 470 miles of canal, eighteen reservoirs and thirteen feeders. The long level being drawn from wholly to feed the western end of the eastern division, and drawn from to feed the Syracuse level and Oswego canal in part, makes it almost impossible, during the dry times of the seasons, to keep up the water to its proper height.

· Under the management of an agent who was employed to give particular attention to the water supples of this division, navigation was kept up without any delay of moment from short supply of water.

A report of condition of reservoirs and depth of water in the Erie at various points, for each day of the season of navigation, will be found in this report.

The middle division of the canals, during the first two months of the fiscal year of 1876 — October and November — was under the direction of the late Commissioner R. W. Strond, and the balance of the year — say from December 3, 1875 — in charge of C. A. Walrath.

There was expended by Commissioner Stroud:	
By superintendents	<b>\$28,731 34</b>
For general management	10, 109 19
For extraordinary repairs	23, 094 09
Paid awards for land damage	3,415 96
Total	\$65,350 58
Of the above amount, there was paid by Commis Jackson, Jr.:	sioner James
For ordinary repairs \$1,781 00	
For extraordinary repairs 3,009 00	
By C. A. Walrath, for ordinary 2,677 36	<b>\$</b> 7, 467 36
The expenditures for all purposes, embracing ordinary repairs, for work, and payments authorized between and Canal Board, and for salaries and miscellant tures, as compared with those of the preceding year, viz.:  1875. Old division	y the Legisla- leous expendi- are as follows, \$465, 531 18
ordinary repairs, for work, and payments authorized be ture and Canal Board, and for salaries and miscellant tures, as compared with those of the preceding year, viz.:  1875. Old division	y the Legisla- leous expendi- are as follows, \$465, 531 18

Statement showing expenditures of the three sections of the middle division of the Erie canal for five months, commencing October 1, 1875.

## REPAIR SECTION No. 6.

## HENRY EHLE, Superintendent.

This section embraces twenty-seven miles of the Erie canal, extending from the east bank of the Old Oneida Lake canal to the Limestone Creek feeder, the Oneida Creek feeder two miles in length, the Erieville and Cazenovia Lake reservoirs, and Chittenango feeder.

The structures are three aqueducts, three waste-weirs, twenty-seven

culverts, three wooden farm bridges, twenty-one wooden road bridges, six iron canal, and two iron feeder road bridges, one swing bridge, four feeder dams, and one stop-gate.

The expenditures upon the section were as follows:

ORDINARY REPAIRS. By superintendent	\$2,910	65
Extraordinary Repairs.		
Widening and deepening ditches in Cowasselon swamp,	12,839	17
Total	\$15,749	82
The following is a detailed statement of expenditures intendent:	by the sup	er-
Road bridges	\$4	96
State scow	923	00
Breaking ice and assisting boats through ice	32	00
Watching canal reservoirs and feeders	490	00
Tools, including shovels, picks, etc	20	<b>4</b> 8
Other miscellaneous expenditures	115	21
Special foreman	225	00
Superintendents' salary	687	50
Clerk's salary	412	<b>5</b> 0
Total (ordinary)	\$2,910	65

#### REPAIR SECTION No. 7.

## ABRAM SCOUTEN, Superintendent.

This section extends from Limestone Creek feeder to a point 100 feet west of Nine-mile creek or Camillus feeder, including De Ruyter and Otisco Lake reservoirs, Limestone, Butternut and Camillus feeders, each navigable one mile — total, seventeen miles.

The structures are four double stone lift locks, four waste-weirs, two farm bridges, six wooden feeder bridges, one wooden chain bridge, six wooden road bridges, two iron tow-path bridges, fourteen iron road bridges, one feeder bridge, two swing bridges, one iron foot bridge, two feeder dams, four locks, one watch and one storehouse, one workshop, and two timber sheds.

The expenditures upon this section were as follows:

ORDINARY REPAIRS.		
By the superintendent	<b>\$</b> 6,366	28
Watching canal and feeder	129	33
LAND DAMAGES.	.•	
Permanent and temporary	27,021	38
Extraordinary Repairs.		
Swing bridge at Salina street, Syracuse \$2,287 19		
Iron bridge and stone abutments at Thomp-		
son's landing		
Vertical wall (berme side) Syracuse level 354 34		
Vertical wall Syracuse level 346 38		
Vertical wall on Long level and Fayette-		
ville feeder		
	3,932	57
Total	\$37,449	56

The following is a detailed statement of expenditures by the super-intendent:

#### SUMMARY REPORT

For five months, showing the name and number of structures or works, the different heads of expenditure, and the cost of each, on the line of the canal under the charge of Abram Scouten, superintendent of repairs of nineteen miles of the Erie canal, extending from Lime Stone Creek feeder to a point 100 feet west of Camillus feeder, during the five months ending February 29, 1876.

1 .	2	3	4	5
STRUCTURES OR WORKS, ETC.	Whole No. on section.	Cost of new structures.	Cost of repairs of old, etc.	Total nev and old.
Locks Lock tending (exclusive of oil) Dil for locks Lock-gates Aqueducts Waste-weirs Culverts Weigh-locks Farm bridges (wood)	36 8 4 10	\$802.81	\$218 35 1,386 72 37 12 74 48	\$218 1, 386 37 877
toad bridges (wood).  koad bridges (iron).  wing bridges  'ow-path bridges (wood).  'ow-path bridges (iron).  tate scows.  mall boats.	10 14 2 2 2 2 1	339 18	299 66 5 15 86 65	638 5
ce breakers .ock-houses Workshops Watch-houses torehouses taising and repairing tow-path and berme bank, not including repairs to slope walls	2 2		380 43 5 55	380 5
(State scow crew)	5		585 50 48 41 24 00 189 00	535 43 24 189
quence of ice vatching canal reservoirs and feeders orse-walk cols, including shovels, picks, crowbars, axes, etc ther miscellaneous expenditures	1		478 00 16 00 46 48	478 16 46
ther miscellaneous expenditures		\$641 99	\$4, 249 29	\$4, 891
pecial foreman's salary lerk's salaryuperintendent's salary				375 412 687
Total expense, Superintendent Scouten	for 5% mont	hs ending Mar	ch 16, 1876	\$6,866

#### REPAIR SECTION No. 8.

## S. B. Rowe, Superintendent.

This section extends from a point 100 feet west of Nine Mile creek or Camillus feeder to the east line of Wayne county, embracing the Skaneateles and Owasco Lake reservoirs and feeders; total, thirty miles. The structures are: Two stone double lift-locks, five aqueducts, three waste-weirs, twenty-one culverts, two wooden chain

bridges, four farm, thirteen wooden road bridges, eleven iron bridges, one iron foot bridge, four feeder dams, two lock-houses, two watch-houses and one workshop.

The expenditures on this section were as follows:

Ordinary Repairs.		
By superintendent	<b>\$</b> 6, 432	99
ORDINARY REPAIRS.  By superintendent	81	<b>25</b>
Land Damages.		
Permanent and temporary	1,672	90
Extraordinary Repairs.		
Building dam at Owasco outlet, Auburn \$4,216 15	•	
Constructing new feeder channel at Port		
Byron 14,450 24	:	
Opening and straightening Memphis ditch 235 15		
	18,901	<b>54</b>
Total	\$27,088	68
•		=

The following is a detailed statement of expenditures by the superintendent:

#### DETAILED REPORT

Of ordinary repairs on section No. 8, of the Erie canal, under the charge of S. B. Rowe, superintendent of repairs of thirty-one miles of said canal, extending from 100 feet west of mouth of Camillus feeder to east line of Wayne county, during the five and one-half months ending March 15, 1876.

STRUCTURES OR WORK, ETC.	Items of labor or materials in each work or object of expenditure.	Cost of each item of labor and material on each work, etc.	Total cost of each work,
Locks.* Lock tending. Oll for locks. Repairing bridges Port Byron, Jordan and Mon-	1 51 and 52	\$69 19 694 65 7 86	\$69 19 694 65 7 86
tezuma levels	Plank Repairs and supplies Repairs	22 57 71 87 12 85	22 57 71 37 12 35
Raising and repairing tow-path Montezuma, Port Byron and Jordan levels. Repairing dams, Port Byron and Centerport. Repairing vertical wall, Port Byron level. Docking.		1, 994 20 18 34 763 42 839 36	1,994 20 18 34 768 42 889 86
Docking Breaking ice, and assisting boats in consequence of ice Watching canal and tending feeders. Tools	Repairs	817 62 476 66 5 56	817 6 <b>5</b> 476 66 5 56
			\$5, 298 17

#### DETAILED REPORT

Showing the name and number of structures or works, the different heads of expenditure, and the cost of each, on the line of the canal under the charge of S. B. Rowe, superintendent of repairs of thirty-one miles of the Erie canal, extending from 100 feet west of mouth of Camillus feeder to east line of Wayne county, during the five and one-half months ending March 15, 1876.

1	2	8	4	5
STRUCTURES OR WORK, ETC.	Whole No. on section.	Cost of new structures.	Cost of repairs of old, etc.	Total new and old.
Locks Lock tending (exclusive of oil). Oil for locks Lock-gates Aqueducts Waste-weirs Culverts Farm bridges (wood). Foot bridges (iron). Road bridges (wood). Road bridges (iron). State scows Lock-houses	16 5 8 21 4 1 18 11 2 2		\$69 19 694 45 7 86 	\$69 16 694 44 7 86 29 57 71 87 12 88
Workshops  Dame (feet) Vertical wall  Docking Breaking ice and assisting boats in conse	1 2 4		18 84 763 42 839 86	18 8 763 4 889 8
Breaking ice and assisting boats in conse- quence of ice. Watching canal. Toils, including shovels, picks, crowbars, axes, etc. Other miscellaneous expenditures.			817 62 476 66 5 56 11 12	817 6 476 6 5 5 11 1
Other work of consequence which does not come under either of the above heads, viz Repairing and removing Port Byron feeder trunk Publishing abstracts Superintendent and clerks' salary	e F		342 74 25 32 1, 100 00	342 7 25 8 1,100 0
(Deduct material bought but not used				889 8
•				\$6, 432 99

S. B. ROWE, Superintendent of Canal Repairs.

By a resolution of the Canal Board, passed January 27, 1876, the following was constituted the middle division of the Erie canal, extending from the east line of the county of Oneida to the easterly line of the county of Wayne, divided into three sections, and described as follows:

Section No. 5 extends from the east line of the county of Oneida

to the west side of Peterboro Street bridge, in the village of	f Canasto	ota,
being 38.106 miles in length	38.3	106
Section No. 6 extends from the west side of Peterbo	ro	
street bridge to a point 100 feet west of Nine Mile creek	or	
Camillus feeder, being 31.004 miles in length	31.0	004
Section No. 7 extends from a point 100 feet west of Cam	il-	
lus feeder to the easterly line of Wayne county, being 27.9		
miles in length	27.9	913
Total number of miles of middle division of Erie can	al,	
according to survey of D. E. Whitford	•	)23
·		==
REPAIR SECTION, No. 5.		
JOSEPH FAASS, Superintendent, for seven months, ending (	Oct. 1, 18	<b>76</b> .
The expenditures on this section were as follows:		
ORDINARY REPAIRS.		
By the superintendent	23,359	22
Feeder tenders	880	00
Total	24.230	22

The following is a detailed statement of expenditures and remarks by superintendent:

#### SECTION No. 5.

## JOSEPH FAASS, Superintendent.

This section extends from the east line of Oneida county to the west end of Peterboro Street bridge, in the village of Canastota, county of Madison, making a total distance of about thirty-nine miles.

The structures upon the section are: One lock, twelve lock gates, one weigh-lock, three aqueducts, eleven stone arch culverts, twenty-seven composite culverts, twenty-four farm bridges (wood), one farm bridge (iron), one approach bridge (wood), one approach bridge (iron,) four farm bridges (iron chord), one foot bridge (wood), one foot bridge (iron), one lift bridge (iron), one swing bridge (wood), two road bridges (wood), twenty-three road bridges (iron), six road bridges (iron chord), three tow-path bridges (wood), five waste-weirs, six feeders, two stop gates, with sills, frames and plank complete, three feeder bulk-heads, with a total of sixteen paddles, one stone dam at Mohawk feeder of

180 feet, one dam at Oriskany feeder of 214 feet, one dam at Wood Creek feeder of 33 feet, one dam at Oneida Creek feeder of 89 feet.

The annexed table shows the cost of all the work of ordinary repairs done on this section by the superintendent during the seven months of the fiscal year from March 1st to September 30, 1876.

The locks on the section have been kept in efficient repair, by inserting two new lock-gates at the Utica weigh-lock, and others needed repairs. There are also on hand two new lock-gates for lock No. 46 at Utica.

The old Oriskany aqueduct trunk has been taken out and a new one inserted, under the charge of superintendent Giles Hawley, last winter. The connections on both ends, such as vertical walls and puddling connections across the canal, were made last spring. Said aqueduct is in excellent condition now, and no leakage whatever. I would recommend that the vertical walls at the connections of the Yorkville aqueduct be taken out and new ones put in of better material, the same constantly leaking, being a great waste of water, and which cannot otherwise be avoided.

A general repairing has been necessary to many of the bridges upon the section, besides extensive repairs to lift bridge at Utica, and the building of a new iron chord farm bridge at Hennessy's, near Oriskany, on sixty-mile level.

Repairs have been made to the State scows "H. S. Klock" and "Joseph Faass." I would earnestly recommend that a new repair scow be put in place of "H. S. Klock," the same being in an entirely unfit condition.

The repairing and raising of tow-path and berme bank, including the setting of snubbing posts, inserting sluices, etc., have been attended to as thoroughly as was possible. The berme bank has had to be strengthened in very many places, and the bridge approaches, both farm and road, filled in and raised, and this work has compelled the use of a large amount of gravel and other materials.

The cleaning of prism of feeders and canal, including work done in the main prism, during spring repairs, has been done as thoroughly as was possible, with the amount of money available. The canal, west of Oriskany and through the city of Rome, should be more perfectly bottomed out, to secure good navigation during the time of low water in August and September.

There are on this section, at the close of the present fiscal year, two ice-breakers, which are in good condition and ready for use.

The State repair shop at Utica has been thoroughly repaired, and the yard so inclosed as to protect State property at this point.

The work of clearing the creek channels and State ditches adjoining and leading under the canal on this section requires a large yearly expenditure, and the numerous diving culverts leading from ditches through the Rome swamp, and other points require far more attention and care than is generally supposed; they have been kept open and in good order through the entire year.

The spring floods having undermined nearly one half of the highway of the west end of the Oriskany Feeder dam and abutments, also a land-slide having occurred along the channel of the feeder, the same was thoroughly repaired.

The vertical and slope walls throughout the section, which were accepted in an imperfect condition, had fallen in the canal in many places, and required considerable expense.

The old walls and docking on tow-path and berme side, in the vicinity of New London, should be replaced by good vertical walls, as there is a great expense yearly in keeping them in repair, and it would further the interests of navigation if these improvements were made as soon as possible.

The docks at Utica, Oriskany, Newville, Rome, New London and Stacey's basin were kept in as good repair as was possible with the resources at hand; very much of the timber coping on the tow-path along the section was in bad condition, and many were taken out and replaced by new docking timber.

Navigation for loaded boats bound east was interrupted for about twelve hours during August, caused by low water, but, through the prompt supply of water from the Black River reservoirs, there was no further interruption.

## SECTION No 5.

## JOSEPH FAAS, Superintendent.

Superintendent's expenditures for repairs during the seven months from March 1 to September 30, 1876.

STRUCTURES.	New work.	Old work.	Total new and old.
Lock tending (exclusive of oil)		\$309 55 588 00	\$309 50 588 00
	<b>\$</b> 751 24	707 17	14 19 751 24 707 1
Culverts Weigh-locks	487 90	140 85   551 86 175 08	140 86 551 86 175 00
04.4.	457 00	2, 344 58 801 19 41 26 877 97	2,781 56 801 19 41 26 877 9
Tow-path and berme bank Cleaning bottom of canal. Cleaning on creeks.		5, 575 80 4, 564 62 590 24	5, 575 86 4, 564 66 590 24
Dams Feeders Slope and vertical walls.		418 07 542 28 671 08	418 0° 542 24 671 0°
Docking		848 79 1, 129 00 71 29	848 79 1, 129 0
Miscellaneous Lift bridge, Utica		26 84 781 89	26 8 781 8
	<b>\$</b> 1, 188 24	<b>\$20,770</b> 98	\$21, 959 2
Superintendent's salary	••••••	•••••	875 0 525 0
Total	• · · • • • • • • • • • • • • • • • • •		\$23, 359 2

#### REPAIR SECTION No. 6.

Chapman W. Avery, Superintendent, for seven months, ending September 30, 1876.

This section extends from the west side of Peterboro Street bridge, in Canastota, to a point 100 feet west of Nine Mile creek or Camillus feeder, embracing Erieville, Cazenovia lake, De Ruyter, Jamesville and Otisco Lake reservoirs; the Chittenango, Limestone, Butternut and Camillus feeders; the last three each navigable one mile. The structures are: Four stone double lift-locks, four aqueducts, five waste-weirs, fifteen culverts, one weigh-lock, seven wooden farm bridges, two swing bridges, seventeen wooden road bridges, eighteen iron road bridges, two wooden tow-path bridges, one iron tow-path bridge, four locks, two watch and two storehouses, two timber sheds, and seven feeder dams.

ORDINARY REPAIRS.		
By the superintendent	\$18,602	81
Feeder tenders	919	16
Swing bridge, Salina street, Syracuse	75	00
Total	<b>\$19, 596</b>	97

The following is a detailed statement of expenditures by the superintendent:

Hon C. A. WALRATH, Canal Commissioner:

Sir. — Accompanying my report from March first to the end of the fiscal year, September 30, 1876, I desire to present the following statements in regard to the condition of the section under my charge:

Upon taking charge of said section on the first of last March, sixteen miles had been added to the eastern end, thereby extending the section to the village of Canastota; this addition, however, being in good repair, and there being no important structures upon it, has required but a small outlay. During the season of navigation the required depth of water has been maintained, and navigation has been uninterrupted. The towing-path of nearly the entire length of the section, of last year, was in poor condition, but has been raised, graveled and graded, and is now in excellent order. The locks and lock-gates are in good working order. Two new gates have been placed in locks No. 48 and 50, and a duplicate set constructed for lock No. 47 in case of emergency. The aqueduct over Nine Mile creek, on the Jordan level, is unsafe and will need rebuilding after the close of navigation. The weigh-lock at Syracuse should be relined. The numerous bridges upon the section require constant watching and expense; several have been repaired and replanked, and all may be considered in good order, with the exception of Grape Street bridge, in Syracuse, which has been condemned and needs a thorough overhauling. New ones have been constructed across the Long level at Burdick's and Manlius Center, also at Cazenovia, and one across the Butternut Creek feeder. The swing bridge in Syracuse has been well repaired; the one at Fayetteville is entirely useless and needs rebuilding. The section is much in need of a suitable workshop and yard where the property belonging to the State can be more safely stored.

Very respectfully yours.

C. W. AVERY,

Superintendent Section 6, Erie Canal.

Syracuse, N. Y., October 1, 1876.

## REPORT

Showing the name and number of structures or works, the different heads of expenditure, and the cost of each, on the line of the canal under the charge of C. W. Avery, superintendent of repairs of thirty-three miles of the Erie canal, extending from Canastota to 100 feet west of Camillus feeder, from the 1st day of March, 1876, to the 30th day of September, 1876.

1	2	8	4	5
STRUCTURES OR WORKS, ETC.	Whole No. on section.	Cost of new structures.	Cost of repairs of old, etc.	Total new and old.
Locks	4		\$736 08	\$736
Lock tending (exclusive of oil)			2,867 96	2,367
Oil for locks			87 80	87 8
Lock-gates	36 4	\$760, 41	123 10 212 40	883 4 212 4
Aqueducts	5		4 75	4
Culverts	15		4 10	<b></b>
Weigh-locks	1 1		68 00	68
Farm bridges (wood)	7			
Swing bridges (iron) (road)	2		145 26	145
Road bridges (wood)		2,027 56	114 56 508 41	2, 142
Road bridges (iron)	18		505 41	508
Fow-path bridges (iron)	ĩ			
State scows	2		221 13	221
Small boats	2			
ce breakers	1	••••	•••••	
ock-houses	4 2	•••••		••••••
Workshops Watch-houses	2		••••	
torehouses.	2	•••••	•••	
Reservoirs	1		1,568 75	1,568
Raising and repairing tow-path and berme			.,	,
bank, not including repairs to slope walls,			3, 532 20	8, 582
Cleaning out bottom of canal during spring			0.000.40	0.000
repairs			2, 082 46 25 <u>=</u> 22	2, 082 4 25 2
Dama (feet)	. 7		18 40	18 4
Blope wall, 195.95; vertical, 102.13			298 08	298
Jocking			688 11	633
Watching canal			430 .00	430 (
Wheelbarrows		••••	83 00	88 (
Fools, including, shovels, picks, crowbars, axes, etc			209 00	209 (
Other miscellaneous expenditures			92 41	92 4
		••••	0.0	
Other work of consequence which does not come				
under either of the above heads, viz.:			00.00	
Fending reservoirs	• • • • • • • • • • • •	••••	96 00 131 10	96 ( 131 1
Special foreman	•••••		780 66	780 6
poetar roroman,				
		\$2,787 97	\$14,418 81	\$16, 202 8
Plerk				525 (
Superintendent				875 (
· •			•	A10, 000 (
				\$18,602 8

C. W. AVERY, Superintendent of Repairs.

Syracuse, N. Y., October 17, 1876.

#### REPAIR SECTION No. 7.

ELIJAH S. Drake, Superintendent, for seven months ending September 30 1876.

This section extends from a point 100 feet west of Nine Mile creek or Camillus feeder to the easterly line of Wayne county, embracing the Skaneateles and Owasco Lake reservoirs and feeders.

The structures are two stone double lift-locks, five aqueducts, three waste-weirs, twenty-one culverts, two wooden chain bridges, four farm bridges, thirteen wooden road bridges, eleven iron bridges, one iron foot bridge, four feeder dams, two lock-houses, three watch-houses, and one work-shop.

The expenditures on this section were as follows:

ORDINARY REPAIRS.  By the superintendent		
Total	<b>\$</b> 12, 483	03

The following is a detailed statement of expenditures by the superintendent:

#### REPORT

Showing the name and number of structures or works, the different heads of expenditure, and the actual cost of each, on the line of the canal under the charge of Elijah S. Drake, superintendent of repairs of thirty-one miles of the Erie canal, extending from Camillus feeder, Onondaga county, to Seneca and Wayne counties' lines, during the seven months ending September 30, 1876.

' 1	2	. 3	4	5
STRUCTURES OR WORKS, ETC.	Whole No. on section.	Cost of new structures.	Cost of repairs of old, etc.	Total new and old.
Locks. Lock tending (exclusive of oil) Oil for locks Lock-gates. Aqueducts Waste-weirs Culverts. Farm bridges (wood). Road bridges (wood). Road bridges (wood). Tow-path bridges (wood). State scows Loc breakers Lock-houses Workshops Watch-houses (Port Byron feeder dam). Raising and repairing tow-path and berme bank, not including repairs to slope walls, Cleaning out bottom of eanal during spring repairs. Cleaning on creeks.	16 5 8 21 4 13 11 2 2 1 8	\$33.39	\$263 00 1, 496 00 1, 496 00 1, 8 78 2832 99 72 07 92 79 5 50 792 54 336 18 4 00 38 61 75 2, 386 77 1, 579 37 376 14 76 05	\$263 00 1, 496 00 1, 496 00 1, 496 00 1, 496 00 18 78 232 99 72 07 92 79 5 50 792 54 336 18 4 00 38 61 75 33 39 2, 386 77 1, 579 37 376 14 76 05
Slope wall.  Docking.  Repairs of breaches.  Watching canal.  Wheelbarrows.  Tools, including shovels, picks, crowbars, axes, etc.  Other miscellaneous expenditures.		46 50 147 96	74 79 66 07 234 22 684 80 	74 79 66 07 234 22 684 80 46 50 167 46 820 11
Other work of consequence, which does not come under any of the above heads, viz.: Burying dead horses. Filling up at receiving pipe, Port Byron. Excavating turn around Weedsport. Filling up roadway, Port Byron. Cutting weeds. Digging ditch, Montezuma. Removing old trunk, Port Byron. Constructing protection wall, Montezuma. Relaying vertical wall, Weedsport. Repairing ditches.		100 00 152 89 444 72 \$925 46	298 49 8 00 32 75 54 14	44 53 79 63 100 00 49 00 298 49 152 89 8 00 444 72 32 75 54 14
Clerk hire				525 00 875 00
•				\$12,063 03

Supplementary Report by Elijah S. Drake, superintendent of repairs of thirty-one miles of the Erie canal, extending from the Camillus feeder, Onondaga county, to Seneca and Wayne counties lines, during the seven months ending September 30, 1876; it also embraces Skaneateles and Owasco Lake reservoirs and feeders.

The structures are: Two double stone lift-locks, five aqueducts, three waste-weirs, twenty-one culverts, two wooden tow-path bridges, four farm bridges, thirteen wooden road bridges, eleven iron bridges, four feeder dams, two lock-houses, three watch-houses and one work-shop.

## NEW STRUCTURES COMPLETED.

(None are in process of construct	ion.)				
Watch-house over Port Byron					
feeder gates	<b>\$</b> 33	<b>39</b>			
Turn-around at Weedsport	100	00			
Ditch, west of Montezuma, from				•	•
culvert to Seneca river	152	89			
Protection wall between Monte-					
zuma and May's Point	444	72	<b>\$</b> 731	00	
OLD STRUCTUR	es R	EPAI	RED.		
Locks.				•	
Lock 51	<b>\$</b> 94	<b>7</b> 9			
Lock 52	168	21			
<del>-</del>			263	00	
Lock-gates.	<b>A</b> 40	4.0			
Lock 51	<b>\$42</b>				
Lock 52	190	50			
·			· <b>232</b>	99	
_ Aqueducts.					• •
Jordan	<b>\$</b> 21				
Centreport	3	00			
Port Byron	11	25			
Crane brook	_	25			te de la companya de La companya de la co
Montezuma	34	<b>6</b> 0	<b>~</b> 0	<b>~</b> =	•
			72	07	•
Waste-weirs.	<b>6</b> 0 7	77 E			
Carpenter brook	\$67	-			
Weedsport	25	U <b>4</b>	92	70	
_			02	10	

## CANAL COMMISSIONERS.

State Scores   Stat	Culverts.			<b>A</b> =	٧.
Newport       \$10 00         Memphis       5 00         Peru       10 00         California       7 00         Carpenter brook       8 00         Rogers, Jordan       20 00         Main street, Jordan       35 00         Pump factory, Jordan       20 00         Cold Spring pump       22 57         Fountainville       25 00         Field's       20 00         Young's       30 00         Seneca street, Weedsport       28 00         Burtus street, Weedsport       130 00         Hamilton       15 00         Centreport       10 00         State house, Port Byron       35 00         Armstrong, Port Byron       15 50         Ames' dock, Port Byron       15 50         Ames' dock, Port Byron       9 00         Turnpike       7 33         Bucklin       129 14         Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not yet used       131 00         Tock-houses       10 00         Lock 51       \$6 56         Lock 52       32 05	Carpenter brook	• • • • •	• • •	₩5	50
Memphis       5 00         Peru       10 00         California       7 00         Carpenter brook       8 00         Rogers, Jordan       20 00         Main street, Jordan       35 00         Pump factory, Jordan       20 00         Cold Spring pump       22 57         Fountainville       25 00         Field's       20 00         Young's       30 00         Seneca street, Weedsport       28 00         Burtus street, Weedsport       130 00         Hamilton       15 00         Centreport       10 00         State house, Port Byron       35 00         Armstrong, Port Byron       15 50         Ames' dock, Port Byron       15 50         Ames' dock, Port Byron       10 00         Gutches, Port Byron       9 00         Turnpike       7 33         Bucklin       129 14         Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not yet used       131 00         Tock-houses       10         Lock 51       \$6 56       7         Lock 52 <td< td=""><td></td><td></td><td></td><td></td><td></td></td<>					
Peru       10 00         California       7 00         Carpenter brook       8 00         Rogers, Jordan       20 00         Main street, Jordan       35 00         Pump factory, Jordan       20 00         Cold Spring pump       22 57         Fountainville       25 00         Field's       20 00         Young's       30 00         Seneca street, Weedsport       28 00         Burtus street, Weedsport       130 00         Hamilton       15 00         Centreport       10 00         State house, Port Byron       35 00         Armstrong, Port Byron       20 00         Dougherty, Port Byron       15 50         Ames' dock, Port Byron       10 00         Gutches, Port Byron       9 00         Turnpike       7 33         Bucklin       129 14         Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not yet used       131 00         Tock-houses       792 54         Lock 51       \$6 56       /         Lock 52       32 05		-			
California       7 00         Carpenter brook       8 00         Rogers, Jordan       20 00         Main street, Jordan       35 00         Pump factory, Jordan       20 00         Cold Spring pump       22 57         Fountainville       25 00         Field's       20 00         Young's       30 00         Seneca street, Weedsport       28 00         Burtus street, Weedsport       130 00         Hamilton       15 00         Centreport       10 00         State house, Port Byron       35 00         Armstrong, Port Byron       20 00         Dougherty, Port Byron       15 50         Ames' dock, Port Byron       10 00         Gutches, Port Byron       9 00         Turnpike       7 33         Bucklin       129 14         Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not yet used       131 00         You path       56 56         Lock 52       32 05         Tokhouses       38 61         Lock 52       32 05         Tokhouses       38 61		5	00		
Carpenter brook       8 00         Rogers, Jordan       20 00         Main street, Jordan       35 00         Pump factory, Jordan       20 00         Cold Spring pump       22 57         Fountainville       25 00         Field's       20 00         Young's       30 00         Seneca street, Weedsport       28 00         Burtus street, Weedsport       130 00         Hamilton       15 00         Centreport       10 00         State louse, Port Byron       35 00         Armstrong, Port Byron       20 00         Dougherty, Port Byron       15 50         Ames' dock, Port Byron       10 00         Gutches, Port Byron       9 00         Turnpike       7 33         Bucklin       129 14         Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not       yet used       131 00         Y92 54         Lock 52       32 05         Lock 52       32 05         State Scows.         D. B. McNeil       \$131 70					
Rogers, Jordan       20 00         Main street, Jordan       35 00         Pump factory, Jordan       20 00         Cold Spring pump       22 57         Fountainville       25 00         Field's       20 00         Young's       30 00         Seneca street, Weedsport       28 00         Burtus street, Weedsport       130 00         Hamilton       15 00         Centreport       10 00         State house, Port Byron       35 00         Armstrong, Port Byron       20 00         Dougherty, Port Byron       15 50         Ames' dock, Port Byron       10 00         Gutches, Port Byron       9 00         Turnpike       7 33         Bucklin       129 14         Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not       792 54         Lock 51       \$6 56         Lock 52       32 05		•			
Main street, Jordan       35 00         Pump factory, Jordan       20 00         Cold Spring pump       22 57         Fountainville       25 00         Field's       20 00         Young's       30 00         Seneca street, Weedsport       28 00         Burtus street, Weedsport       130 00         Hamilton       15 00         Centreport       10 00         State house, Port Byron       35 00         Armstrong, Port Byron       20 00         Dougherty, Port Byron       15 50         Ames' dock, Port Byron       9 00         Turnpike       7 33         Bucklin       129 14         Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not       131 00         yet used       131 00         Tock-houses         Lock 51       \$6 56         Lock 52       32 05         38 61         State Scows         D. B. McNeil       \$131 70	<b>=</b> ,	_	00		
Pump factory, Jordan       20 00         Cold Spring pump       22 57         Fountainville       25 00         Field's       20 00         Young's       30 00         Seneca street, Weedsport       28 00         Burtus street, Weedsport       130 00         Hamilton       15 00         Centreport       10 00         State house, Port Byron       35 00         Armstrong, Port Byron       20 00         Dougherty, Port Byron       15 50         Ames' dock, Port Byron       9 00         Turnpike       7 33         Bucklin       129 14         Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not       yet used       131 00         Tock-houses       100         Lock 51       \$6 56       1         Lock 52       32 05       38 61         State Scows       D. B. McNeil       \$131 70		<b>2</b> 0	00		
Cold Spring pump       22 57         Fountainville       25 00         Field's       20 00         Young's       30 00         Seneca street, Weedsport       28 00         Burtus street, Weedsport       130 00         Hamilton       15 00         Centreport       10 00         State louse, Port Byron       35 00         Armstrong, Port Byron       20 00         Dougherty, Port Byron       15 50         Ames' dock, Port Byron       9 00         Turnpike       7 33         Bucklin       129 14         Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not yet used       131 00         Tock-houses       792 54         Lock 51       \$6 56         Lock 52       32 05         38 61         State Scows.         D. B. McNeil       \$131 70	Main street, Jordan	35	00		
Fountainville 25 00 Field's 20 00 Young's 30 00 Seneca street, Weedsport 28 00 Burtus street, Weedsport 130 00 Hamilton 15 00 Centreport 10 00 State house, Port Byron 35 00 Armstrong, Port Byron 20 00 Dougherty, Port Byron 15 50 Ames' dock, Port Byron 10 00 Gutches, Port Byron 9 00 Turnpike 7 33 Bucklin 129 14 Road, Montezuma 20 00 Tow-path 5 00 May's point 1 15 00 Lumber for bridges in store, not yet used 131 00  Lock 51 \$6 56 / Lock 52 32 05  State Scows. D. B. McNeil \$131 70	Pump factory, Jordan	20	00		
Field's       20 00         Young's       30 00         Seneca street, Weedsport       28 00         Burtus street, Weedsport       130 00         Hamilton       15 00         Centreport       10 00         State house, Port Byron       35 00         Armstrong, Port Byron       20 00         Dougherty, Port Byron       15 50         Ames' dock, Port Byron       10 00         Gutches, Port Byron       9 00         Turnpike       7 33         Bucklin       129 14         Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not       131 00         yet used       131 00         Tock-houses       792 54         Lock 51       \$6 56         Lock 52       32 05         38 61         State Scows         D. B. McNeil       \$131 70	Cold Spring pump	22	57		
Young's       30 00         Seneca street, Weedsport       28 00         Burtus street, Weedsport       130 00         Hamilton       15 00         Centreport       10 00         State house, Port Byron       35 00         Armstrong, Port Byron       20 00         Dougherty, Port Byron       15 50         Ames' dock, Port Byron       9 00         Turnpike       7 33         Bucklin       129 14         Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not yet used       131 00         Very used       131 00         Tock-houses       792 54         Lock 51       \$6 56         Lock 52       32 05	Fountainville	25	00		
Seneca street, Weedsport.       28 00         Burtus street, Weedsport.       130 00         Hamilton.       15 00         Centreport.       10 00         State house, Port Byron.       35 00         Armstrong, Port Byron.       20 00         Dougherty, Port Byron.       15 50         Ames' dock, Port Byron.       9 00         Turnpike.       7 33         Bucklin.       129 14         Road, Montezuma.       20 00         Tow-path.       5 00         May's point.       15 00         Lumber for bridges in store, not yet used.       131 00         Tock-houses.       792 54         Lock 51.       \$6 56         Lock 52.       32 05         Bucklin.       \$131 70	Field's	20	00		
Seneca street, Weedsport.       28 00         Burtus street, Weedsport.       130 00         Hamilton.       15 00         Centreport.       10 00         State house, Port Byron.       35 00         Armstrong, Port Byron.       20 00         Dougherty, Port Byron.       15 50         Ames' dock, Port Byron.       9 00         Turnpike.       7 33         Bucklin.       129 14         Road, Montezuma.       20 00         Tow-path.       5 00         May's point.       15 00         Lumber for bridges in store, not yet used.       131 00         Very used.       131 00         Tock-houses.       792 54         Lock 51       \$6 56         Lock 52       32 05	Young's	30	00		
Hamilton	Seneca street, Weedsport	28	00		•.
Hamilton	Burtus street, Weedsport	130	00		
State liouse, Port Byron       35 00         Armstrong, Port Byron       20 00         Dougherty, Port Byron       15 50         Ames' dock, Port Byron       10 00         Gutches, Port Byron       9 00         Turnpike       7 33         Bucklin       129 14         Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not yet used       131 00         Yet used       131 00         Tock-houses       792 54         Lock 51       \$6 56         Lock 52       32 05         38 61         State Scows         D. B. McNeil       \$131 70		15	00		
State liouse, Port Byron       35 00         Armstrong, Port Byron       20 00         Dougherty, Port Byron       15 50         Ames' dock, Port Byron       10 00         Gutches, Port Byron       9 00         Turnpike       7 33         Bucklin       129 14         Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not yet used       131 00         Yet used       131 00         Tock-houses       792 54         Lock 51       \$6 56         Lock 52       32 05         38 61         State Scows         D. B. McNeil       \$131 70	Centreport	10	00		
Armstrong, Port Byron		35	00		
Dougherty, Port Byron       15 50         Ames' dock, Port Byron       10 00         Gutches, Port Byron       9 00         Turnpike       7 33         Bucklin       129 14         Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not yet used       131 00         Y92 54         Lock 51       \$6 56         Lock 52       32 05         38 61         State Scows         D. B. McNeil       \$131 70		20	00		
Ames' dock, Port Byron		15	<b>5</b> 0		
Gutches, Port Byron		10	00		
Turnpike	· · · · · · · · · · · · · · · · · · ·		00		
Bucklin       129 14         Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not yet used       131 00         Y92 54         Lock 51       \$6 56         Lock 52       32 05		7	33		
Road, Montezuma       20 00         Tow-path       5 00         May's point       15 00         Lumber for bridges in store, not yet used       131 00         Yet used       792 54         Lock 51       \$6 56         Lock 52       32 05         -       38 61         State Scows         D. B. McNeil       \$131 70		129	14		
Tow-path		20	00		
May's point.       15 00         Lumber for bridges in store, not yet used.       131 00         Veck-houses.       792 54         Lock 51.       \$6 56         Lock 52.       32 05         —       38 61         State Scows.       \$131 70		5	00		
Lumber for bridges in store, not yet used		15	00		
yet used       131 00         Lock-houses       792 54         Lock 51       \$6 56         Lock 52       32 05         -       38 61         State Scows       \$131 70	<del>-</del> -				
Lock 51	-	131	00		
Lock 51	•			792	<b>54</b>
Lock 51	T - 1 1				
Lock 52		<b>\$</b> 6	56	,	
State Scows.  D. B. McNeil		-		•	
D. B. McNeil \$131 70				38	61
D. B. McNeil \$131 70	~ ~				
— · - · · · · · · · · · · · · · · · · ·		<b>Q</b> 121	70		
Pr C   1713KM					
336 18	12. D. DIRRO		<del></del>	336	18

# Ice Breaker.

ice Dreaker.		
Pumping and towing from Port Byron	<b>\$4</b>	00
Workshops.		
State-house, Port Byron		75
Tow-path and Berme.		
Raising and repairing on Jordan and Port Byron levels \$1,786 77 Raising and repairing on Monte-		
zuma level	\$2,386	77
There is about eight miles of tow-path gr	raveled.	
Prism of Canal.		
Bottoming out during Spring R	epairs.	
Newport and vicinity \$135 80	•	
<b>J</b>		
Jordan and vicinity 130 54		
Weedsport and vicinity 358 80	•	
Centreport and vicinity 79 25		
Port Byron and vicinity 402 12		
Montezuma and vicinity 338 44		
May's Point and vicinity 15 04		
	1,579	37
Clearing on Creeks.		
Carpenter brook \$224 44		
Port Byron feeder 151 70		
	376	14
Dams.		
Jordan feeder		
Port Byron feeder 2 39	76	05
Slope wall.		
Jordan level \$50 79		
Montezuma 24 00		
<del></del>	74	79

Docking.						
Memphis	\$17	23				
Jordan	16	76				
Weedsport	17	<b>53</b>				
Montezuma	14	<b>55</b>	`			
<u>-</u>			<b>\$</b> 66	07		
Other work of consequen	ce m					
·	,		•			
Filling up around receiving pipe	<b>A-</b> -0					`
at Port Byron	<b>\$</b> 79	63				
Filling up road-way where old						
trunk crosses Port Byron	49	00				
Removing old trunk at Port By-						
ron	8	00			•	
Relaying vertical wall Weedsport,	32	<b>75</b>				
Repairing ditches Pt. Byron level,	<b>54</b>	14				ı
Cutting weeds Port Byron and					•	•
Montezuma level	99	04		•		
Cutting weeds Jordan and Port						
Byron level	199	45				
			522	01		
<i>a</i>		_			\$6,919	63
Tools. Old ones repaired			<b>#</b> 10	kΩ		
			<b>\$</b> 19			
New ones purchased	• • •	• • •	147	90	167	<b>4</b> 6
Wheelbarrows.			•			10
New ones purchased					46	50
_						-
Oil for Locks.				0.1		
Lock 51			-	61		
Lock 52	• • • •	• • •	11	07	10	78
Lock-tending.					10	10
Lock 51		• • •	<b>\$74</b> 8	00	•	
Lock 52			748	00		
W	,		<del></del>		1,496	00
Watching Canal						
Patrolmen and watchmen				• • •	<b>684</b>	80
Repairs of breaches, Newport			<b>\$</b> 28		•	
Repairs of breaches, Skaneateles			28			
Repairs of breaches, Carpenter bro				27		
Repair of breaches, Port Byron	• • • •	• • •	101	25		
		-			234	<b>22</b>

Burying dead horses			\$44	
Miscellaneous	\$875	00	320	11
Clork, buttery bovon months			1,400	00
Total	• • • • • • •		<b>\$12,</b> 063	03
RECAPITULATION.		. =		==
New structures completed	<b>\$</b> 731	00		
New tools purchased	147			,
New wheelbarrows purchased		50	•	
<del>-</del> ,			<b>\$</b> 925	46
Old structures repaired	<b>\$</b> 6,919	63	•	
Old tools repaired	19	<b>50</b>		
Breaches repaired	234	22		
T 1 4 3 4	<b>\$1</b> 400		7, 173	35
Lock tending				
Watching canal	684			
Oil for locks		78 —	2,199	58
Burying dead horses	<b>\$44</b>	53	2,100	00
Miscellaneous	320	11	•	
Superintendent and clerk	1,400	00		
			1,764	64
Total			\$12,063	03
The following extraordinary repairs will ing year, as estimated:  Aqueduct at Seneca river, near Montezuma			ing the co	m-
ing fourteenth and fifteenth spans from ea	st end, a	nd		
replanking other places			<b>\$2,4</b> 00	00
Dam at Jordan feeder, building an entire new St. John's bridge, Weedsport, building an			1, 100	00
structure'			300	00
Road bridge, Skaneateles, over feeder, par	tial reti	m-		
bering and replanking			150	00
Total		- 	\$3,950	00

A breach in tow-path was caused one and one-half miles east of Newport early in March last by an adjoining farmer digging a ditch from the old canal, thereby washing away the tow-path.

A breach occurred at the Carpenter Brook feeder in May last, and another during the same month happened to the Skaneateles feeder, at Skaneateles. There was no hindrance to navigation whatever from any of the above breaks.

There were no sunken boats or delays to navigation on this section. The depth of seven feet of water has been maintained on the mitersills of locks 51 and 52.

#### ELIJAH S. DRAKE,

Superintendent.

WEEDSPORT, N. Y., October 20, 1876.

The following expenditures are charged to the account for general management of the middle division of the Erie canal:

Drafts given for salaries, etc., division and resident engi-		
neers	\$2,000	00
Commissioner's salary and traveling expenses	3,687	37
Salaries of division agents and clerk	5, 597	98
Salaries assistant engineers and inspectors	4,918	<b>5</b> 0
Stationery, postage and telegraph,	331	33
Repairs to weigh-lock building	75	89
State dredge and tug	927	77
Board of Canal Commissioners' clerk (at Albany)	2,083	35
Secretary Board Canal Commissioners	570	87
Miscellaneous expenditures	269	<b>3</b> 0
Two dump boats (to use with dredge)	828	16
Total	\$21,290	52

Salaries, travel and office expenses of division and resident engineers are charged to the Erie canal, although their duties extend over the entire division.

#### CHENANGO CANAL.

# EDWIN SMITH, Superintendent.

This canal extends from the Erie canal at Utica to the Susquehanna river at Binghamton, ninety-seven miles.

The following reservoirs are located upon it: Madison brook, Wooodman's pond, Leland's pond, Bradley's brook, Hatch's lake,

Kingsley's brook, and Eaton brook, all of which are in the southern part of Madison county. Connected with this canal are eighteen miles of feeder. The structures are: One hundred and eleven composite and stone lift-locks, two guard-locks, seventeen wooden trunk aqueducts, forty-four stone culverts, twenty-three waste-weirs, seventeen iron road bridges, ninety-six wooden farm bridges, fifty wooden road bridges, thirty-nine wooden feeder bridges, six swing bridges, six wooden tow-path bridges, four reservoir dams, four feeder dams, fifteen lock-houses, one workshop, three storehouses, three timber sheds.

The expenditures upon this canal were as follows:

<b>\$</b> 9, 392	
27	<b>25</b>
\$9,419	56
_	

This section, during the first six months, was in charge of Harmon Bennett, superintendent; the succeeding four months in charge of L. C. Sweet, superintendent; the succeeding month and twelve days was in charge of Harmon Bennett, agent; the succeeding eighteen days in charge of Edwin Smith, superintendent.

The following is a detailed statement of expenditures by super-intendent:

## SUMMARY REPORT

Showing the name and number of structures or works, the different heads of expenditure, and the cost of each on the line of the canal under the charge of Edwin Smith, superintendent of repairs of ninety-seven miles of the Chenango canal, extending from the Erie canal, at Utica, to the Susquehanna river, at Binghamton, during the fiscal year ending September 30, 1876.

1	2	. 4
STRUCTURES OR WORKS, ETC.	Whole number on section.	Cost of repairs of old, etc.
Locks	111	<b>\$</b> 1,046 85
Lock tending (exclusive of oil)		2,931 98
Lock-gates	<b>4</b> 16	31 50
Aqueducts	17	48 92
Waste-weirs	<b>23</b>	5 75
Culverts	44	28 59
Farm bridges (wood)	96	241 41
Road bridges (wood)	49	} 1,418 42
Road bridges (iron)	17	1,410 42
Tow-path bridges (wood)	6	·
Tow-path bridges (swing bridges)	7	116 80
State scows	3	53 52
Feeder bridges	2	15 74
Lock-houses	15	
Workshops	1	
Storehouses	3	
Timber-sheds	3	
Raising and repairing tow-path and berme		
bank, not including repairs to slope walls		67 51
Cleaning out bottom of canal during spring		
repairs		317 85
Dams (feet)	• • • • • • • •	38 38
Repairs of breaches		474 39
Watching canal		<b>22</b> 5 00
Wheelbarrows		30 00
Tools, including shovels, picks, crowbars,		
axes, etc		19 00
Other miscellaneous expenditures		180 79
Other work of consequence which does not		
come under any of the above heads, viz.:		
Mowing eel-grass	• • • • • • • •	415 43
Reservoirs	• • • • • • • •	21 50
Mad brook	,	12 98
Salaries	• • • • • • • • • • • • • • • • • • • •	1,650 00
Total	••••	\$9,392 31

#### THE BLACK RIVER CANAL.

## SAMUEL F. GARMON, Superintendent.

This canal extends from its junction with the Erie canal at Rome to Carthage, Jefferson county, a distance of seventy-eight miles, and includes the Black River improvement, the Moose River improvement, above the dam at Lyon's Falls, one mile and a-half; the feeder from Boonville to Forestport, ten and a-half miles; the Delta feeder; the Black river, above the dam at Forestport, two miles; also the North Lake, South Lake, Sand Lake and Woodhull reservoirs.

The structures on this canal are 109 lift-locks; one guard-lock on Delta feeder, and one at the head of the Black River feeder; six aqueducts, viz.: Walsworth's, Well's creek, Stringer Creek, Lansing Kill and Sugar River aqueducts; eleven waste-weirs; twenty culverts; four stop-gates; thirty-four road bridges (four iron chord) and (five all iron); thirty-eight farm bridges (one iron chord); five road and draw bridges (one iron chord); three road and change bridges; one farm and change bridge; one tow path bridge; two private bridges; thirty-five lock-houses; twenty-one watch-houses; three bridge houses; one State shop; one timber shed; two keeper's dwellings, one at Northlake and one at Woodhull reservoirs; five dams, one on the Mohawk, one on the Lansing kill, and three on Black river; one lock and dam at Otter creek, and one at Bush's landing, on Black river.

The annexed schedule shows the cost of work done since April 1st, 1876, at which time the canal was transferred from the eastern to the middle division.

Hicks', Buck hill, Delta, Western, Baker's, Ridge mills, Diefendorf's, Dominick street, Thomas street and Whitesboro street road bridges were extensively repaired and put in good order, by fixing approaches, pitting in new needle beams, and building new abutments. Light repairs have been made on nearly all the road bridges. Beaver River bridge, Tiffany's bridge and Beach's bridge, on Black river, were repaired during the season. The Post Road bridge (iron chord), the road bridge at Forestport over the Black River feeder, the draw in Beach's bridge, and two seventy-two feet spans of Illingworth's bridge (iron chord), on Black river, have been entirely rebuilt.

The locks from No. 1 to 109, inclusive, have been repaired during the season thoroughly; new docking has been put in several; gravel filling back of them has been put in where needed, and all sink-holes properly filled with gravel and cement. Fifteen new miter-sills have been put in, and new bottoms were built in several before the opening of navigation in the spring.

New lock-gates have been inserted at locks Nos. 5, 10, 23, 29, 31, 36, 37, 45, 59, 63, 65, 74, 93, 94 and 95 — twenty-one in all. Twenty-nine more are completed, and ready for immediate use. There is material on hand for fully building and completing ten more, except a portion of the arms. Two gates for Otter Creek lock, on Black river, are stored on the bank, near the lock, ready to be inserted. General repairs were made on all the gates, by putting on new bunting, plank, balance-beams, etc. Mohawk, Wells' Creek, Stringer Creek, Lansing Kill and Sugar River aqueducts have been repaired, by replanking and inserting new timbers where needed, and are in good condition.

The sluices at locks No. 6, 8, 18, 28, 31, 35, 36, 48, 49, 50, 51, 53, 55, 84 and 93 were repaired, and two at locks Nos. 27 and 54 have been entirely rebuilt.

All the waste-weirs were put in good order in April before the opening of navigation, and had but light repairs afterward.

The State dam at Forestport was relined with gravel. The dams on the Lansing kill and Mohawk had new aprons built, and a breach in Bushs' Landing dam was filled promptly, causing no delay.

Very light repairs were made on the lock-houses. They are generally in good condition. A new foundation was built under the one at No. 85, the old one having fallen out.

The dams on Black river were all slash-boarded during the season of low water.

The prism of the canal was thoroughly cleaned, and all bars removed in the spring. None were created during the season so as to hinder navigation.

The tow-path has been raised at several points, and is in good condition its entire length.

A steam dredge was used during the entire season in removing the bars in Black river, and navigation for steam tow-boats has been kept good.

The feeder bank has been carefully strengthened, and lined with gravel, to avoid breaches.

Owing to the high banks, that are very narrow in many places, it requires careful watching at all times when filled.

One State scow has been used during the entire season.

A slide occurred at the head of lock No. 62 in the month of August, which was speedily repaired, and did not delay navigation.

Lock No. 4 became undermined in September, causing a delay of two and a-half days, being the only delay during the season on account of accident.

Three keepers have been employed at the reservoirs. No repairs have been made. Special messengers have been sent for water whenever it was needed for the Erie canal. They were all filled in the spring except South lake, which was not entirely filled, on account of the weakness of the dam, it being deemed unsafe. Woodhull is about two-thirds full, and North lake is nearly full. Sand Lake and South Lake reservoirs are entirely empty.

About twenty-five new lock gates will have to be inserted the next year. A number of the gates need new balance beams; some of the locks need new miter-sills and replanking, otherwise they are in good condition.

Westernville and No. 9 feeder road bridge, Hillside road and change bridge, one span of Whittlesey bridge, and a new draw at Tiffany's bridge, both on Black river, should be built the coming year.

Owens' farm bridge needs rebuilding. The iron bridge over Black river, at Carthage, needs general repairs to the masonry and superstructure. It will necessitate an outlay of \$2,000 or \$2,500 to place it in good order.

The dams are in good condition. The culverts and waste-weirs will only require slight repairs, and the sluices will need the usual renovating in the spring.

South Lake reservoir needs repairing. The old timber trunks are rotten and very unsafe, and new pipes of iron should be inserted in their places immediately.

I earnestly recommend the enlargement of the Black River feeder for a distance of four and a-half miles from its head toward Boonville. Its present size is insufficient to keep up navigation on the summit when there is a heavy draught of water for the Erie canal.

Dated Lowville, November 29, 1876.

Respectfully submitted.

S. F. GARMON, Superintendent.

Superintendent's expenditures for six months, ending September 30, 1876. S. F. Garmon, Superintendent.

1	2	8	4	5
STRUCTURES OR WORKS, ETC.	Whole No. on section.	Cost of new structures.	Cost of repairs of old, etc.	Total new and old.
Locks. Lock tending Lock-gates. Aqueducts. Waste-weirs		\$1,753 18	\$1,684 80 7,860 00 2,025 75 415 90 10 01	\$1,634 8 7,860 0 8,778 9 415 9 10 0
Sinices. Bridges State scows. Dredging. Lock houses Raising and repairing tow-path and berme		1,872 12	653 07 804 26 78 64 1, 207 70 74 94	653 0 2,676 3 78 6 1,207 7 74 9
bank Cleaning out bottom of canal during spring repairs Dams Docking Watching canal Wheelbarrows Tools		75 00 64 17	2,010 12 1,883 05 368 00 213 73 130 00	2,010 1 1,883 0 868 0 213 7 130 0 75 0 64 1
		\$3, 764 47	\$19,869 97	
Reservoir keepers.  Special foremen.  Scow foremen.  Messenger to reservoirs.  Care of feeder (special watch).  Superintendent's salary.  Clerk hire.	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		770 0 1, 200 0 292 5 166 8 390 0 750 0 450 0
				* \$27, 158 7

The following is a summary of expenditures for the Oswego canal for the fiscal year ending September 30, 1876:

• • •		
ORDINARY REPAIRS.		
Repairs to weigh-lock at Oswego	\$1,943	99
State dredge and tug	1,492	36
Division agents	1,076	00
Engineering		00
Miscellaneous expenditures	18	43
Superintendents, section 1	20,466	92
Superintendents, section 2	28,541	51
	\$54,045	$\overline{21}$
Extraordinary Repairs.	•	
Rebuilding broken culvert at Oswego	1,016	<b>25</b>
Total	<b>\$55</b> ,061	46
* Expenditures for Black River canal in Commissioner Thayer's report  Expenditures for Black River canal in Commissioner Walrath's report	\$11,87 27,15	72 20 33 78
Expenditures for Black River canal, per auditor's books	89. 02	
Discrepancy	89	95 8 <b>8</b>

The following is a detailed statement of expenditures by the superintendents:

## SECTION 1, OSWEGO CANAL.

This section, during the first five months, was in charge of John S. Kenyon, the balance of the year under Alex. Hammill.

This section extends from Syracuse to Three River Point, and from Cold Spring to Baldwinsville, including the Baldwinsville canal and Seneca River towing-path; total, twenty-one and a-half miles.

The structures are: Five stone lift-locks, one wooden lift-lock, one wooden guard-lock, four composite culverts, eleven wooden road bridges, nine iron road bridges, four wooden change bridges, one iron change bridge, one floating tow-path bridge, one wooden river bridge, three waste-weirs, five lock-houses, one State shop.

The expenditures upon this section, during the fiscal year, for ordinary repairs were, by superintendents, \$20,466.92.

The towing-path from Syracuse to Mud lock has been thoroughly repaired, having been raised in places where it was low, and most of the distance has been covered with coal ashes, making it a very desirable towing-path.

The berme bank has been strengthened in various places (especially upon the lower level), and is now in first-rate condition.

The walls have been repaired upon the Syracuse and Liverpool levels, and are now in fair shape, but in some localities upon the lower level they need to be repaired as soon as the water can be lowered to permit of such work. It becomes necessary to do a large amount of repairs to docking upon this section from year to year, as parts of the main canal and the entire side cuts are flanked with wooden docking. This work become necessary to prevent the sediment from so filling up the main channel as to seriously interfere with navigation.

The Seneca River towing-path, in the vicinity of New bridge, has been materially strengthened by the addition of gravel in places made low by the washing of the river in time of high water.

Each year, at the opening of navigation, it becomes necessary to employ a dredge to remove bars formed in the vicinity of Bradley brook (on account of the high water in the lake, between the close and opening of navigation, this material can be removed in no other way). These bars of sediment extend diagonally across the canal and seriously impair the passage of loaded boats. This evil can be remedied by extension of the vertical wall upon the berme side to

the railroad bridge, and the building of a sand chest at the mouth of the brook. The expense of building would be saved in a short time by saving ordinary cost of removing this deposit from year to year.

On account of the draining of the marshes above, causing a more rapid falling of the water, and the gradual accumulation of rocks, sediment, logs, etc., in the channel cut through red rock reefs on Seneca river, there was not the necessary depth of water to enable loaded boats to pass through. This difficulty has been surmounted by dredging out the channel.

The bridges, with two exceptions, are in thorough repair. The Green Point bridge needs to be rebuilt, and the first change below lock 3 needs rebuilding also.

The locks, with exception of the Baldwinsville lock, are in good condition. The latter will be repaired immediately after the close of navigation.

There ought to be purchased, framed and kept on hand a complete set of lock-gates for the locks at Salina, that, in case of accident, it would not materially interfere with navigation.

There has been no delays to navigation upon this canal, from any cause whatever, during the past fiscal year, and the section, as a whole, was never in better condition.

ALEX. HAMILL, Supt. of Repairs. The following is a detailed statement of expenditures by the superintendents.

#### REPORT

Showing the name and number of structures or works, the different heads of expenditure, and the cost of each, on the line of the canal under the charge of Alexander Hamill, superintendent of repairs of twenty-one and one-half miles of the Oswego canal, extending from Syracuse to Three River Point, and from Cold Spring to Baldwinsville, during the fiscal year ending September 30, 1876.

1	2	8	4	- 5
STRUCTURES OR WORKS, ETC.	Whole No. on section.	Cost of new structures.	Cost of repairs of old, etc.	Total new and old.
Locks			\$261 75 2, 710 50	\$261 70 2, 710 50
Oil for locks	26	\$170 86	76 75 883 18	76 78 508 48
logs			5 <b>2</b> 10 186 40	52 10 196 40
Culverts	4		38 50	88 5
Cutting weeds and brush	ii	} 431 80	53 20 657 31	1,089 1
Road bridges (iron)	4	,		
Tow-path bridges (float)	1 2	887 56	50 99	888 54
Small boats	1	•••••	9 20	9 20
Under-water excavatorsLock-housesWorkshops	5	52 69		52 66
Repairs to feeder, north side-cut		88 00	20 00 124 15	20 00 162 1
Timber sheds Piling machines.	2		••••	
Raising and repairing tow-path and berme bank, not including repairs to slope walls Cleaning out bottom of canal during spring			2,834 95	2, 834 90
repairs, dredging and removing earth  Dams (400 feet) wood			8, 911 21 12 30	8, 911 <b>2</b> 1 12 80
Slope wall			734 85 2, 294 52	734 85 2, 294 55
Materials for repairs to State dredge Breaking ice and assisting boats in consequence of ice			10 90 450 20	10 90 450 20
Watching canal. Tools, including shovels, picks, crowbars, axes, etc.	•••••		60 00	. 60 00
()ther miscellaneous expenditures: Mer.:			37 08	87 08
chants and mechanics' bills	•••••		1,816 52	1,816 59
		\$1,580 41	<b>\$</b> 16, 236 51	\$17, 766 99
Special foreman	• • • • • • • • • • • • • • • • • • • •	•••••••		200 00 2,500 00
Total	· · · · · · · · · · · · · · · · · · ·			\$20, 466 99

ALEX. HAMILL,

Supt. of Repairs.

Baldwinsville, October 6. 1876.

# OSWEGO CANAL, REPAIR SECTION No. 2.

## FREDERICK PATTERSON, Superintendent.

This section extends from Three River Point to Oswego, including the Oneida River improvement, forty-three miles.

The structures are: Thirteen (13) stone lift-locks, six (6) stone guard-locks, two (2) steamboat-lift stone locks (120x30), one (1) weigh-lock, eight (8) waste-weirs, six (6) wooden road bridges, two (2) wooden road and change bridges, three (3) wooden change bridges, one (1) iron change bridge, one (1) wooden river tow-path and change bridge, seven (7) iron road bridges, seven stone dams, one (1) aqueduct, one (1) bulk-head, two (2) draw bridges, five (5) composite culverts, nineteen (19) lock-houses, and one (1) State shop.

The following is a detailed statement of expenditures for five months, from October 1st, 1875, to February 29th, 1876, inclusive:

Locks	<b>\$</b> 50	00
Lock-tending	3,163	09
Oil for locks	<b>3</b> 8	<b>36</b>
Lock-gates	654	38
Culverts	41	15
Weigh-locks	19	<b>75</b>
Road bridges (wood)	573	48
Tow-path bridges (wood)	59	79
Tow-path bridges (iron)	22	<b>26</b>
State scow supplies	33	03
Lock-houses	8	07
Workshop	24	<b>50</b>
Raising and repairing banks	454	23
Dams	124	27
Docking	<b>52</b> 0	65
Repairs of breaches	480	65
Breaking ice and assisting boats	213	<b>75</b>
Watching canal	249	<b>62</b>
Wheelbarrows	12	<b>75</b>
Tools	8	99
Miscellaneous expenditures	61	31
Moving and piling lumber	39	<b>75</b>
Moving sunken logs	<b>2</b> 8	<b>5</b> 0
Collector's office, Oswego	· 1	25

	\$8,472	41
Salary superintendent and clerk	<b>1, 1</b> 00	00
Salary special foreman	<b>34</b> 0	00
Watching bulk-head, Oswego	120	00
Publishing abstract	<b>\$2</b> 8	83

SUPERINTENDENT'S OFFICE, FULTON, N. Y., March 16, 1876.

F. PATTERSON.

#### EXTRAORDINARY REPAIRS.

Rebuilding broken culvert at Oswego..... \$1,016 25

Hiram Fox, superintendent of section 2, Oswego canal, reports the repairs made by him upon said section during the seven months beginning March 1, 1876.

## OSWEGO CANAL, REPAIR SECTION No. 2.

## HIRAM Fox, Superintendent.

This section extends from Three River Point to Oswego, twenty-three miles; it also includes the Oneida River improvement twenty miles, making forty-three miles in all.

The structures are thirteen stone lift-locks, five stone guard-locks, one stone connecting lock, two stone steamboat lift-locks (120 x 30), five wooden waste-weirs, six iron road bridges, five wooden road bridges, one wooden change bridge, one iron change bridge, one wooden change and road bridge, two road and draw bridges, seven stone river dams, one aqueduct, seventeen lock-houses, one State workshop, one weigh-lock.

The annexed table shows the cost of all the work of ordinary repairs done by the superintendent on this section during the seven months. Extensive repairs have been made to the gates at guard-locks 1 and 4, and at 17 and 18. Repairs have also been made to all lock-gates on this section. Eight new gates have been made this season; six new ones on hand March 1, 1876. Put in this season two gates at guard-lock No. 1, two at lift-locks 9, 10, 12 and 13, making ten used this season. Repairs have been made to the gates, so that all have been kept in good working order. The lock-houses at locks 10, 16 and 18 have been repaired so they could be used this

season; the lock-houses are so old and dilapidated that new ones should be built.

The waste-weirs on levels 12 and 19 have been thoroughly repaired and are in good condition now.

During the spring repairs, the bottom of levels 7, 13, 15 and 19 were cleaned out so they have been in passable condition this season. They should be cleaned out before the opening of navigation, 1877.

Some repairs to the towing-paths and berme banks have been made. About two miles of the tow-path have been graveled this season on levels 5, 6 and 7. There should be more gravel on tow-path on levels 5, 6, 9, 13 and 15; they need it very much.

Repairs have been made to the road bridges on levels 5, 6, 10, 11 and 21; they are all in fair condition. Change bridges have been repaired on levels 6, 13 and 14. The change bridge on level No. 15 is considered unsafe and should be rebuilt. The change bridges are all of them rather poor.

Slight repairs have been made to the weigh-lock at Oswego.

Slight repairs have been made to slope wall on level No. 9; vertical wall has been repaired on levels 15 and 20. About 200 feet of new docking was put in on level No. 23; repairs have been made to docking on levels 5, 6, 7, 9, 10, 11 and 13 — more should be made on the same levels. A water superintendent or watchman has been employed at Oswego through the season to insure the safety of the culverts, locks, bulk-head and other structures there.

Extensive repairs have been made on the head-gates at the Oswego Falls dam; the Fulton, Van Buren, Minetto, High and Phœnix dams have been bracketed the present season so as to have enough water for navigation. A depth of at least seven feet of water has been maintained on each and every level on this section during the season.

One sunken boat has been taken from level No. 12, one from level No. 20.

Piling has been repaired on the Oneida river at the approach to the Caughdenoy lock. The gates at Caughdenoy and Oak Orchard locks have been repaired; there should be new gates at each of those locks another season; also new gates at guard-lock 4, and two new gates at 8, and two at 12, and two at 13, and two at 14 and 15.

The State scow has been repaired and painted.

Extensive repairs have been made to the flat boat — it is now in good condition.

Navigation has been uninterrupted except a short time, when new gates were being put in.

There should be a storehouse or timber-shed at the State shop to store timber under. The timber and lumber now have to be exposed to the weather, which is a damage to it.

There should be a coffer-dam built after the close of navigation on level No. 9 so as to shut off the water, so that the vertical wall can be repaired and the bottom of levels 9 and 10 cleaned out.

Superintendent's expenditures for ordinary repairs, section 2, Osweyo canal, for seven months ending September 30, 1876.

1	8	4	5
STRUCTURES OR WORK, ETC.	Cost of new structures.	Cost of repairs of old, etc.	Total new and old.
Locks. Lock tending (exclusive of oil). Oil for locks. Lock-gates. Waste-weirs Repair culverts. Weigh-locks repaired.	<b>\$</b> 8,648 58	\$90 09 5, 402 00 91 56 1, 983 87 166 84 112 45 61 70	\$90 09 5, 402 00 91 56 5, 682 45 166 84 112 45 61 70
Road bridges (wood). Road bridges (iron). Tow-path bridges (wood). State scows repaired and painted. Small boats. Repair flat-boats. Lock-houses, repairs.	7 47	285 42 183 26 152 27 70 77 5 89 298 22 96 16	265 43 183 26 153 27 70 77 12 86 298 23 96 16
Workshops Driving piles. Raising and repairing tow path and berme bank, not including repairs to slope wall Cleaning out bottom of canal during spring repairs.		1,557 54 1,684 70	2 06 57 60 1,557 54 1,684 70
Repair vertical wall Bracket dams Repair head-gates. Slope wall repairing. Docking		86 45 829 83 659 96 17 70 590 79	86 45 829 88 659 96 17 70 645 24
Remove sunken boats.  Watching canal.  Wheelbarrows  Tools, including shovels, picks, crowbars, axes, etc	58 75	81 10 188 14 247 91	81 10 138 14 58 75 947 91
Other miscellaneous expenditures  Other work of consequence which does not come under any of the above heads, viz.;		299 18	299 18
Water superintendent at Oswego		215 00 82 44	215 00 32 44
	\$3, 769 25	\$14,899 85	\$18,669 10
Superintendent's salary for seven months			875 00 525 00
			\$20,069 10

# HIRAM FOX,

Superintendent Section No. 2, Oswego canal.

SUPERINTENDENT'S OFFICE, FULTON, October 16, 1876.

### CAYUGA AND SENECA CANAL.

This canal extends from the Erie canal, at Montezuma, to Seneca lake, at Geneva, with a branch from lock No. 9 to East Cayuga, at the foot of Cayuga lake. Total miles in length (23), twenty-three.

The structures are eleven (11) composite lift-locks, one (1) side lock at Seneca Falls, nine (9) culverts, one (1) pier at the foot of Cayuga lake, one (1) pier at the foot of Seneca lake, eight (8) iron bridges, fourteen (14) wood bridges, and (5) dams.

There has been no lack of water upon this canal during the past season. Navigation has been uninterrupted, with the exception of a breach in dam at Seneca Falls, which delayed navigation about twenty-four hours, and rendered necessary the construction of a new dam, at a cost to the State of seventeen hundred dollars (\$1,700).

The locks and bridges are in excellent condition, as compared with past years; and, by judicious management, can be run with a great deal less cost than heretofore.

JAMES A. FLANAGAN,
Superintendent.

# YEARLY REPORT

Showing the name and number of structures or works, the different heads of expenditures, and the cost of each, on the line of the canal under the charge of James A. Flanagan, superintendent of repairs of the whole of the Cayuga and Seneca canal, extending from Montezuma to Geneva, and from junction near Mud lock to Cayuga, during the year ending September 30, 1876.

, <b>1</b>	2	8	4	5
STRUCTURES OR WORKS, ETC.	Whole No. on section.	Cost of new structures.	Cost of repairs of old, etc.	Total new and old.
Locks Lock tending (exclusive of oil)		\$397 90 843 97	\$561 80 5, 675 47 37 80 185 23	\$959 7 5,675 4 37 8 1,029 9
Lock-gates Waste-weirs Culverts. Farm bridges (wood).	7	148 47		148 4
Farm bridges (iron, change),	9	1,402 79	18 00 452 76	18 0 1,855 5
Tow-path bridges (wood). Tow-path bridges (Iron, draw) State scows. Under-water excavators	2	536 96	752 90 72 85 81 82	1,289 8 72 8 81 8
Lock-houses	8		60 77	60 7
bank, not including repairs to slope walls, Cleaning, cutting grass in canal		1,792 21 471 65	1, 809 15 94 00 212 20 248 23 187 57	1, 309 1 94 0 2, 004 4 719 8 187 5
quence of ice			438 40 806 67	438 4 806 6
Tools, including shovels, picks, crowbars, axes, etc. Other miscellaneous expenditures (repairs).		••••••	5 21 282 76	5 2 282 7
Other work of consequence which does not come under any of the above heads, viz.: Miscellaneous bills			98 50 450 00	98 5
raid captain scow		\$5, 598 95	\$11,481 09	\$17,075 O
Salary superintendent				1,500 0 900 0
Total				\$19,475 0

Dated at Seneca Falls, N. Y., October 16, 1876.

# JAMES A. FLANAGAN,

Superintendent.

The following is a summary statement of expenditures for the Cayuga and Seneca canal for the fiscal year ending September 30, 1876:

ORDINARY REPAIRS.

State dredge and tug ..... **\$2,943** 88

Assistant engineers and inspectors..... **525** 00

CANAL COMMISSIONERS.				.UI
Division agents	<b>\$</b> 75	00		
Telegraphing	<b>2</b>	51		
Miscellaneous expenditures	27	15		'
Harbormaster and beacon tender at				
Geneva	<b>34</b> 0	10		
Harbormaster and beacon tender at				
Ithaca	386	13		
	,475	04		
			\$23,774	81
Extraordinary Repairs	,			
Removing bars from channel of Seneca river, between Cross lake and Monte-				
zuma \$19	893	00		
Constructing vertical wall at Montezuma,	149	63	20,042	63
Total	• • • • •	<u>-</u>	\$43,817	44
ITHACA INLET, FROM GENERAL	Fund			
Removing bars and dredging channel at Cayu,	ga in	let,	<b>\$</b> 3,524	70
Total		· · ·	\$3,524	70
•	•	=		

The following is a detailed statement of expenditures by the superintendent of the Chemung canal:

#### CHEMUNG CANAL.

# CALVIN SHELTON, Superintendent.

This canal extends from the head of Seneca lake, at Watkins, to Elmira, including the feeder from Horseheads to Knoxville, making a total distance of thirty-nine miles of navigable canal.

The structures are two composite lift-locks, twenty-four timber locks (rebuilt), one timber guard-lock, twenty-five old timber locks, four aqueducts, fourteen waste-weirs, four culverts, one dam and bulk-head, seven iron road bridges, twenty five wooden road bridges, fifteen wooden farm bridges, one wooden change bridge, three wooden road and change bridges, three swing bridges, thirty-eight lock-houses, two workshops, one stone house, one timber shed, and four piers.

The expenditures upon this canal were as follows:

Ordinary Repairs.			
Watching canal \$162	00		
State dredge and tug 614	95		
By the superintendent 8,069	41		
· · · · · · · · · · · · · · · · · · ·		<b>\$</b> 8,8 <b>4</b> 6	36
Extraordinary Repairs.			
Repairs to break in timber dock at Corning		2,162	50
CANAL DAMAGES.			
Temporary damages town of Dix, Schuyler county		3,012	<b>6</b> 8
Total	•••	\$14,021	54

This section, during the six months ending April 1, 1876, was in charge of D. P. Dey; the balance of the year under Calvin Shelton.

The following is a detailed statement of expenditures by the superintendents:

# ANNUAL REPORT

Showing the name and number of structures or works, the different heads of expenditure, and the total cost of each, on the line of the canal under the charge of D. P. Dey and Calvin Shelton, superintendents of repairs of thirty-nine miles of the Chemung canal, extending from Watkins to Elmira and from Horseheads to Corning, during the year ending September 30, 1876.

1 .	2	8	4	5	
STRUCTURES OR WORKS, ETC.	Whole No, on section.	Cost of new structures.	Cost of repairs of old, etc.	Total nev	
Locks Lock tending (exclusive of oil) Lock gates Aqueducts Waste-weirs Farm bridges (wood) Road bridges (wood) Road bridges (iron	208 4 10 14 30 4		\$330 70 1,600 00 114 83 140 79 63 40 79 21 480 43	79 480	00 1 83 1 79 3 40 1 21 1 43
Tow-path bridges (wood)	1		57 08 11 36 382 33		7 08 1 86 3 88
Cleaning out bottom of canal during spring repairs		\$14 00	790 75 15 50 85 00	85	75 5 50 5 00 1 00
Tools, including shovels, picks, crowbars, axes, etc. Other miscellaneous expenditures		16 45	2 26 2, 810 32	2, 810	39
		\$30 45	\$6, 463 96	<b>\$</b> 6, 494	41
Superintendent's salary from October 1, 1875 Clerk's salary from October 1, 1875, to March Superintendent's salary from April 1, 1876, t	, to March 3 31, 1876 o September	30, 1876		750 450 875	Ò
Total expenditures from October 1, 1875,	, to Septemb	er <b>3</b> 0, 1876		\$8,069	41

CALVIN SHELTON, Superintendent.

TAVANA, October 12, 1876.

# CROOKED LAKE CANAL.

D. P. Dey, superintendent, from October 1, 1875, to April 1, 1876, and Calvin Shelton, superintendent, from April 1 to September 30, 1876.

This canal extends from Crooked lake, near Penn Yan, to Seneca lake, at Dresden, distance eight miles.

The structures consist of one stone lift-lock, one stone guard-lock, with chamber fenders; ten stone lift-locks, with chamber fenders; sixteen old composite lift-locks, six waste-weirs, three dams, one receiver dam, one wooden tow-path bridge, ten wooden road bridges, four piers, and one storehouse.

The expenditures upon this canal were as follows:

Ordinary Repairs.  By the superintendent	<b>\$</b> 10 <b>4</b>	38
Total	\$104	38

Of the above amount there remains unpaid thirty-three dollars and thirty-six cents.

The following is a detailed statement of expenditures by the superintendent:

#### SUMMARY REPORT

For six months, showing the name and number of structures or works, the different heads of expenditure, and the cost of each, on the line of the canal under the charge of D. P. Dey, superintendent of repairs of eight miles of the Crooked Lake canal, extending from Crooked lake, near Penn Yan, to Seneca lake, at Dresden, during the six months ending April 1, 1876. (For remaining six months of year ending September, 30, 1876, under charge of Calvin Shelton, superintendent, but no expenditures were made.)

1	2	4	5
STRUCTURES OR WORKS, ETC.	Whole No. on section.	Cost of repairs of old, etc.	Total new and old.
Locks Lock tending (exclusive of oil) Lock-gates	 	\$6 00 80 00 9 00	\$6 00 30 00 9 00
Waste-weirs. Road bridges (wood). Tow-path bridges (wood).	10	11 02	11 02
Light-houseStorehouses	1	8 86	8 36
Piers Dams (feet) Other miscellaneous expenditures	8	45 00	45 00
Total expenditures for year ending September 80, 1876.			\$104 88

#### ONEIDA LAKE CANAL.

This canal, when completed, will connect the Erie canal with the waters of Oneida lake, furnishing thirty miles of lake navigation, intersecting the Oneida River improvement, which forms a junction with the Oswego canal at Three River Point.

The expenditures for construction during the fiscal year were as follows:

Repairing bridges	<b>\$4</b> 8	12
Salaries assistant engineers		
Miscellaneous expenditures	73	31
Total	\$1,347	43

# LAND DAMAGES.

Statement showing the payment, by draft and certificate, on account of awards made by the canal appraisers for land damages, for the fiscal year ending September 30, 1876.

	On Account of What Canal.				
TO WHOM PAID.	Erie.	Chemung.	Chenango extension.	Total.	
Stephen Hungerford Charles Hiscock M. V. B. Thompson. John J. Cook B. F. Stanton Miles D. Avery. Roswell and Riley Stannard Charles G. Dodge Dwight Butler John Burns. M. D. Freer. Wm. Prentice.	178 70 866 64 4, 926 05 2, 836 18 11, 992 63 8, 562 21 1, 672 90 128 54 164 86	\$3,012 68	\$1, 830 24	\$28, 694 28 8, 012 68 1, 320 24	
Total				\$33,097 20	

# RECAPITULATION

Of expenditures for ordinary and extraordinary repairs, land damages, etc., upon the Middle Division of the New York State canals, for the fiscal year ending September 20, 1876.

	ORDINARY	ORDINARY REPAIRS.		Water and a Awards by	
CANAL AND SECTION.	By superin- tendent.	By Commissioner.	Extraordina- ry repairs.	appraisers paid.	Total.
Erie, general management. Section No. 6. Section No. 7. Section No. 8. Section No. 5. Section No. 6. Section No. 7. Black River Oswego, general management, Section No. 1. Section No. 2. Cayuga and Seneca Ithaca inlet. Chemung Crooked Lake	\$2,910 65 6,866 28 6,482 99 28,389 22 18,602 81 12,063 03 27,163 78  20,466 92 28,541 51 19,475 04  8,069 41 104 88	\$21, 290 52 129 38 81 25 880 00 994, 16 420 00 5, 036 78 4, 299 77 776 95	\$12, 339 17 3, 932 57 18, 901 54 1, 016 25 20, 042, 63 3, 524 70 2, 162 50	\$28, 694 28 	\$49, 984 90 15, 749 82 10, 428 18 25, 415 78 24, 239 22 19, 596 97 12, 483 02 27, 183 78 6, 058 03 20, 466 92 28, 541 51 43, 517 44 3, 524 70 14, 021 54
Chenango Oneida Lake Chenango extension	9, 392 81	27 25	1,847 48	1,320 24	9, 419 56 1, 347 48 1, 320 24
Total	\$182,938 33	\$33, 936 01	\$68, 766 79	\$88,027 20	\$313, 668 <b>83</b>

# STATEMENT

Showing expenditures for ordinary and extraordinary repairs upon each canal of the Middle Division, for the fiscal year ending September 30, 1876.

Erie	\$129,203	<b>52</b>
Black River.	27,153	78
Oswego	55,061	<b>46</b>
Cayuga and Seneca	43,817	<b>44</b>
Ithaca inlet (general fund)	3,524	70
Chemung	11,008	<b>86</b>
Crooked Lake	104	38
Chenango	9,419	<b>56</b>
Oneida Lake	1,347	<b>43</b>
Total	<b>\$280,641</b>	13

# SUMMARY.

Total expenditures for ordinary and extraordinary repairs		12
Total expenditures for ordinary and extraordinary		10
repairs, including payments of awards made by cana	1	
appraisers	313,668	33

TABLE No. 1—ERIE CANAL.

Statement of work under contract upon the Middle Division of the New York State Canals during the fiscal year ending September 30, 1876.

	AUT	AUTHOR-	tion,	198 101		e com-		lone	auno	pe	
CHARACTER OF WORK.	Chapter	lo swal	Appropria	Estimated apart by Board, ·	When let.	When to b	Estimated contract I		ma latoT enob	Unexpend balance	Remarks.
Removing bench and sub- stituting slope or vertical wall. Long level	797	1870			Mar. 28, '71	April 25, 71	\$20,280 00			\$20, 280 00	Canceled.
Furnishing material for But- ternut Creek reservoir	343	1872		*******	Sept. 20, '72	Jan. 1, '73	42, 800 00		\$42,646 19	:	Comr's contract com-
De Ruyter Reservoir dam.		:		***************************************	Dec. 21, '72	Feb. 1, '73	11,600 00		5, 120 00	6, 480 00	Commis'ers contract.
Removing wall benches and substituting slope wall, T. P. side Jordan level	389	1873	\$40,000 00 80,000 00	\$25,650 00 12,350 00	Ang. 18, '73	May 1, "74	21,060 00		21, 916 99	16,083 01	Settled.
vertical wall between War- ren street bridge and											
Cuse. Genoving wall bench and	766	1873	10,000 00	4, 197 50	April 22, '74	April 25, '74	2,741 25	\$354 34	575 34	3,622 16	Plan changed.
sub-tituting slope wall, berme side, Jordan level Reopening Memphis ditch Widening berme locks 47	850	1874	360,000 00 25,000 00	113,000 00 800 00	Oct. 21, 74 Oct. 21, 74	April 1, '75 Jan. 1, '75	52, 060 00 482 00	235 15	68,660 00 643 15	44,340 00	Canceled. Final rendered.
and 48, and inserting Heath's tumble gates	399	1874	65,000 00	23,000 00	Dec. 3, 74	April 1, '75	17,041 33		17,041 33		Final rendered, draft
Byron Byron	399	1874	15,000 00	15,000 00	Dec. 8, '74	April 1, '75	10, 399 25	14, 450 24	14, 892 24	***************************************	Final rendered, draft
outlet at Auburn	399	1874	9,000 00	12,000 00	Dec. 8, '74	April 1, '75	5, 299 00	4, 216 15	6,936 15	2,063 85	Final rendered, draft
Syracuse. Vertical wall, Syracuse level.	381	1874	None. 20, 000 00	20, 000 00 6, 264 00	Dec. 8, 74 Feb. 19, 75	April 1, '75 April 1, '75	17, 255 00 8, 925 80	2, 287 19 346 38	15, 190 19 2, 318 38	Cert'c'te for 3,945 62	Final rend., certificate.
and Fayetteville feeder	888	1874	20,000 00	6,746 00	Feb. 19, '75	April 1, '75	8, 201 50	323 98	2,040 98		Final rendered, draft
selon swamp	388	1874	25,000 00	25,000 00	May 5, '75	Jan. 1, '76	15, 780 00	12, 839 17	21, 237 17		Final rendered, draft
Cazenovia			None.		Dec. 18, '79	April 25, '73	6,828 75		9,740 61		Final rend., certificate.

bridge at Thompson's	88	1874	1874 \ 1,500 00 \ 2,900 00 \	} 4,400 00 Dec.	Dec. 8, 74	4 April 1, "75	75 2, 912 50	620 68	2, 694 68	:	Final rendered, draft given.
Total		:	:	:				\$35, 673 28			
					Osw	OSWEGO CANAL.	AL.				
Deepening Oswego river at     767		1870	\$27,000 00 13,000 00	14, 500 00	July 14, '69	\$27,000 00   14,500 00   July 14,'89   Dec. 1,'89	99 89, 600 00	:	:	\$14,500 00	Canceled.
Rebuilding broken culvert			10,000 00	6, 500 00	Aug. 18, '73	May 1, 74	4, 742 00	\$1,016 25	\$5, 198 25		Draft rend, for final aco.
J				CA	YUGA AN	D SENEC	CAYUGA AND SENECA CANAL.		,	•	
Removing bars from chan- nel of Seneca river Vertical wall at Montezuma	399 399 399	1873 1873 1873 1874	\$30,000 000 000 000 000 000 000 000	\$50,000 00 500 00 432 00	Aug. 24, "72 Aug. 18, "73	Dec. 1, 73	50,000 00   Aug. 24, "72   Dec. 1, "73   \$48,840 00   \$19,893 00   500 00   Aug. 18, "73   May 1, "74   932 00   149 63	\$19, 898 00 149 68	\$50,000 00 846 48		Draft rend. for final acc.
					Ітн	ITHACA INLET	I.				
Removing bars and dredging channel	88	1874	\$15,000 00	1874 \$15,000 00 \$15,000 00	June 16, 74	Bept. 1, 74	14 87,250 00		\$3, 524 70 \$14, 455 70		Draft rend. for final acc.
J					CHEN	CHENANGO CANAL.	NAL.				
Swing bridge, Water street,	399	1874	\$2,000 00	\$2,000 00	May 5, '75	June 1, 75	\$1,854 00			\$2,000 00	Canceled.
I					CHEM	CHEMUNG CANAL.	AL.				
Repairs of timber dock at	i	:	Superint cont	endent's' }	Now. 9, 7	Superint endent's   Nov. 9, '75   Dec. 15, '75	75 82, 162 50	<b>\$2</b> , 162 50	\$2, 162 50		Draft rend. for final.
					ONEIDA	ONEIDA LAKE CANAL.	ANAL.				
g pletion of canal   ξ 850   1872	3850		\$50,000 00 25,000 00		Dec. 19, '7	8   Jan. 1,"			\$38, 120 00   \$36, 880 00	\$36,880 00	
Total	:	i					:	<b>\$26,746 08</b>	:	:	

Hon. C. A. Walrath, Canal Commissioner, Middle Division, New York State Canals:

Sir. — I have the honor to herewith submit my annual report of the general condition of the reservoirs and feeders under my supervision, on the middle division of the State canals, also the water gauge and measurements on different localities on the Erie canal, together with such suggestions for the future as are deemed proper to lay before you for your consideration.

#### RESERVOIRS.

Owasco Lake reservoir, Otisco Lake reservoir, Skaneateles Lake reservoir, Jamesville reservoir, De Ruyter reservoir, Cazenovia Lake reservoir, Erieville reservoir, Madison Brook reservoir, Bradley Brook reservoir, Eaton reservoir, Kingsley Brook reservoir, Woodman's Pond reservoir, Hatch's Lake reservoir, Leland's Pond reservoir, North Lake reservoir, South Lake reservoir, Woodhull reservoir. Sand Lake reservoir.

#### FEEDERS.

Mohawk River feeder, Oriskany Creek feeder, Oneida Creek feeder, Cowasselon Creek feeder, Limestone Creek feeder, Butternut Creek feeder, Nine Mile Creek feeder, Carpenter Brook feeder, Putnam Brook feeder, Owasco Creek feeder, Skaneateles Creek feeder, Chittenango Creek feeder, Centerport feeder.

In a short time after my appointment to the charge of the water for the canals on the middle division, I proceeded personally to make an inspection of the reservoirs and feeders south of the Erie canal. and after due investigation into all the facts that could be gleaned from persons well acquainted with the manner the reservoirs and feeders had been conducted formerly, I made such changes as, in my judgment, would be of greater advantage to navigation on the canals, The management of the reservoirs and feeders heretofore have been under the direction of superintendents of repairs, who could not, together with their other duties, devote such attention as is required, and indeed is indispensably necessary for the benefit of all concerned in good navigation.

I find that considerable confusion and annoyance occurred where two reservoirs are required to furnish water on two sections, and supplying same level of the canal. When the levels were reported down below "navigation mark," one superintendent would wait for the other to draw from the reservoir on his section, and, unless the

arrangement was mutual by prior agreement, there would be a long lapse of time before the water from either reservoir would be let into the feeders. The result of such stubborn inclination to favor personal whims or caprices would cause great delay, by the loaded boats getting aground on both sections of the level, and, when the water was let into the feeders, the supply would come in floods and more than meet the temporary demand of the levels; therefore, causing a great waste of water over the spill-ways and waste-weirs of the canal.

Another source of annoyance to good navigation was caused by the owners of mills and factories who depended upon the water leading from the several reservoirs, and which are located upon the outlets that supply the feeders of the canal. Formerly, many of the mill-owners were allowed to take charge of the gates to the reservoirs and dams, which caused suspicion among the boatmen, who alleged that the millers would first take care of their own interests to the serious injury of the canals. In several instances, the millers would shut off or let on the water at their own option. This practice, which had been established so many years, was one of the first changes made under my supervision and one in which I met the strongest opposition. It was the custom of many to shut off the water entirely on Saturday nights and not to let it on again until the following Monday morning. This kind of arrangement most seriously injured navigation on the canal, and more especially upon the Jordan level, where loaded boats were to be seen frequently aground on Monday of each week during a dry season. As a remedy for this, I suggested and you at once rendered a hearty approval to a selection of water-tenders from among those who did not own or in any manner have an interest in mills or factories upon any of the streams flowing from the reservoirs. As a result of this arrangement you will observe that the Jordan level which has, in the past, given the most trouble to boatmen and canal officials, this season presents the best record, as to gauge of water, as compared with other levels upon the canal. (See table of water record annexed.)

During the hot summer months of the past season the feeders were obstructed by a heavy growth of eel-grass that prevented the channel from receiving the full volume of water that was required from the reservoirs. These obstructions were, however, promptly removed by the several superintendents, who at once caused them to be mown down, by which means free and uninterrupted passage was given to the streams.

It has been my desire, during the past season, to draw steadily and lightly from the reservoirs, thus avoiding frequent overflowing of the feeders and canals, which are liable to cause "breaks" in the banks or washing away of dams and waste-weirs.

The reservoirs have all held out remarkably well, and with one exception (the Leland) contained an abundant supply of water at the close of navigation.

As an example, I will give a few items of record as regards the De Ruyter reservoir. Requisitions are frequently made on this source of supply which can be taken as a fair example of the others.

August 1, 1876, "the water ceased to run over the spill-way."

				•	
					Feet.
September	13, 18'	76, below	high-water	mark	6.25
September	13, 18	75, below	high-water	mark	6.75
September	13, 18	74, below	high-water	$mark\dots\dots\dots$	7.05
September	13, 18	73, below	high-water	mark	16.25
September	13, 18	71, below	high-water	mark	12.50
September	13, 18	70, below	high-water	$mark\dots\dots\dots$	9.15
September	13, 18	68, below	high-water	mark	12.00
September	13, 18	67, below	high water	mark	13.85
September	13, 18	66, below	high-water	mark	15.80
September	13, 186	65, below	high-water	mark	15.40
September	13, 18	64, below	high-water	mark	14.30
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		Henry J. Snow, in charge of water-gauge and tender of feeder.	John Dalley, in charge of water-gauge and tender of feeder.	Lewis Blanchard, in charge of water-gauge and tender of feeder.	John W. Stewart, in charge of water-gauge and tender of feeder.
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I have kept a daily record of the measurements of the depth of water in the canal at the following places: Oriskany, Rome, Fayette-ville and Jordan. You will observe that the water-gauge at Rome is not quite up to "navigation mark." There are several reasons given for this deficiency, principally on account of the extreme low water in the Mohawk river, and the eel-grass in several of the northern feeders; another cause for low water is owing to feeding upon the eastern division during the draught in August and September.

The "water-tenders" under my charge have performed their duties faithfully and satisfactorily. All have seemed to be inspired with the spirit of reform and the better management of the affairs of the canals; all instructions and orders promulgated from head-quarters of the Canal Commissioner, or from his deputies and agents, have been promptly obeyed.

The above is most respectfully submitted.

# E. L. WALKATH,

Superintendent of Reservoirs and Feeders.

# CONDITION OF CANALS ON THE MIDDLE DIVISION.

The early spring of 1876 enabled the commissioner to have done all the necessary work in time for the opening of the Erie, Oswego, Cayuga and Seneca canals on the fourth day of May. From the time of opening to the close of navigation (December first), it is questionable whether there has ever been less interruption to navigation than during the past season. At various points, where boats had heretofore grounded, the bottom of the canal was cut down from two to six inches. Where boatmen have been detained by low water, occasioned by the diversion of water by millers, the necessary remedy was applied to avoid delays from that cause.

The Jordan level, which for years was a terror to overloading boatmen, had a depth of over seven feet of water during the season, except July fourteenth, when it got down to six feet six inches. While the wall-bench may have interferred with boatmen running near enough to the tow-path to change horses, yet it cannot be alleged that there was any other cause of complaint on the level during the season.

The long level at Rome was more difficult to keep up, from the rather short supply of water, and the requirements of the eastern division, while the western end of the level exhibited more depth of

water in consequence of less being required in feeding toward the west. The Montezuma level has occasioned no trouble to boatmen during the season from any cause whatever, for it has been closely watched and economically managed, as shown by the report of the superintendent, who seems to have given strict attention to the business of his section of canal and worked in the interest of the State.

Before the opening of canal next season, a portion of the Montezuma aqueduct must be retimbered. The aqueduct at Camillus will be retrunked entire. Feeder dam at Jordan, the feeder dam at Oneida, also the dam at Fayetteville will be rebuilt from necessity during the winter and spring. Most of the material has been bought at very reasonable rates. William Street bridge, in Syracuse, while being repaired, dropped into the canal, but was soon taken out with but small damage. It was thoroughly overhauled by a practical bridge builder, and is now one of the best bridges on the canal. Grape Street bridge, in Syracuse, needs reconstructing during the winter and will cost about \$1,200 for a good job.

The "swing bridge" in Syracuse has been quite expensive in its necessary repairs, but is now in good condition. Other bridges have been thoroughly overhauled and now in order, but there are so many on the canals that there is necessity for continued repairs of bridges somewhere along the line. The "lift" bridge at Utica, which was improved by some addition during the spring, has worked acceptably during the season. A swing bridge at Fayetteville is needed by a few persons doing business with the canal, and as the State built the one now almost useless, they ask the State to build another, and estimates have been made for the work.

#### THE OSWEGO CANAL.

This canal has been in good navigable order during the season, made so by the dredging done upon it and the abundant supply of water from the Oswego and Oneida rivers. The dams at Phænix, Fulton, Minetto and the Van Buren dam needed extensive repairs, which have been done since the end of fiscal year. There will probably be no necessity for any work of an extraordinary nature being done on this canal for many years to come. It is one of the canals that ought to be cheaply run, when there is nothing to do to the Oswego River dams. Mud lock, at Baldwinsville, must be repaired.

#### CAYUGA AND SENECA.

This canal has been well and prudently managed, with a full supply of water, mostly from Seneca lake. None of the troubles of the previous year, with low-water and boats aground, occurred during the season of 1876, from the too free use of water by millers; no detention, except by the breaking away of dam at Seneca Falls, which caused a delay of only twenty-four hours. A new and substantial dam is now in place of the old, and the canal and structures are in good condition, with the exception of Mud lock, near Montezuma, which will want some repairs during the coming winter or next spring. This should be done to avoid the wasting of water from the Montezuma level.

# BLACK RIVER CANAL.

The Black River canal was opened to navigation on the fifteenth day of May, and, with but slight interruptions, continued in good navigable condition until the end of the season. The business in lumber, timber and other products of the section through which the canal runs is of considerable importance to the commerce of the State, and is also one of the most important feeders of the Erie canal. The structures on the canal are in good condition and will need but a small annual outlay to maintain good navigation.

At Carthage a bridge was built by the State over the Black river. While there is no reason to show why the tax-payers of the State were under more obligations to build one there than they would be to build another at Rondout or Hudson, the citizens most interested in the maintenance of the bridge by the State, with a laudable ambition to save the expense to themselves, are clamoring to have extensive repairs made thereto before some action be taken by the proper authorities compelling them to do that which the State is under no equitable obligations to spend a dollar for. The reckless appropriations of money by the Legislature for private purposes, heretofore, is one of the reasons why the canals show an indebtedness to the State, and has been a reason for preparing the minds of the people for disposing of some and neglecting others.

# CHENANGO CANAL, OPENED JUNE FIFTEENTH.

The small amount of about \$4,200 available for this canal, made it impossible to make any extensive repairs preparatory to opening, and retain a sum sufficient to pay the men required to attend 110

locks for any length of time. By great economy, an uncertain navigation was continued for five months. The structures are mostly in a dilapidated condition, and will require a large outlay of money, within a short time, to have it at all reliable for the purpose of navigation.

It is one of those canals that the Constitution empowers the Legislature to dispose of, and as it seems to have outlived its usefulness, the sooner the most of it is disposed of the better will it be for the tax payers of the State.

That part of it from Hamilton north, which is absolutely necessary for conducting the water from the Madison County reservoirs to the Erie canal, cannot, of course, be included in the sale or abandonment of the "Chenango canal."

There is a large quantity of stone in the structures of the canal that, in some localities, would sell for a large amount of money. For the abutments of a bridge and stone of a lock in Binghamton, sold last winter, the sum of \$550 was realized by the State. More than that amount in value, inside the corporate limits of Binghamton, belonging to the State now, can be readily disposed of.

#### CHEMUNG CANAL.

This canal was substantially bankrupt at the end of the last fiscal year. The docking at Corning required repairs to the amount of \$2,162.50, to avoid great damage being done, for which the State would be liable. By legislative enactment \$10,000 was appropriated for the Chemung canal, which, by prudent management during the season, enabled the boatmen to navigate it from June fifteenth to November fifteenth, without any serious interruption. The condition is such that, without a large amount of money expended on structures, there could be no assurance for its being passable or safe for any great length of time.

The chief source of support to this canal will, within one year, beyond a doubt, be cut off by the completion of the Corning and Geneva Railroad. With the record of the canal in the past, and very uncertain prospects for the future, I regard this as one of the unfortunate "limbs of the commercial tree," which it would be well. for the legislative "ax-man" to lop off.

#### THE CROOKED LAKE CANAL

Seems to have died a natural death, with no friend in the Legislature to procure for it the necessary means to continue its precarious exist-

ence. Some friends may yet resurrect and bring it to life for a season, but its days are numbered, and it better be left "requiescat in pace."

The great importance of the Erie, Oswego and Champlain canals to the commerce and business prosperity of this State has been so often and ably discussed that, were it not for the custom established by the Canal Commissioners of making "annual remarks," I would have nothing to say on the subject.

The regulating tendency of these canals over the railroad charges for freight is the chief cause of their usefulness to the great majority of cur people. The low rates of freight during the season of canal navigation, contrasted with the high railroad rates during the close of the canals, conclusively demonstrates to the producer, shipper and consumer, the great importance of maintaining these canals to retain to our own State the proper proportion of the business of the vast West, for which outside competition is so recklessly striving to deprive us of.

Great extravagance in the enlargement, and reckless expenditures in the management, is the chief cause of the canals being in debt to the State for years.

The main lines would of themselves be a source of revenue and profit this day, with all the mismanagement, extravagance, etc., were it not for the drawback of the non-paying laterals. The constitutional amendments, which restrict expenditures of the Erie, Oswego, Champlain, Cayuga and Seneca canals to the income of the previous year, offers strong inducement to the railroads to continue their warfare against the canals until boatmen are forced to "tie up," and the income so small as to shorten the season of navigation. The "irrepressible conflict" will doubtless continue until the boatmen can pay no toll and make a dollar. Yet, until the Constitution is again "amended" there cannot be a "free canal."

Respectfully submitted.

C. A. WALRATH.

# WESTERN DIVISION.

CANAL COMMISSIONER'S OFFICE, LOCKPORT, December 10, 1876.

The undersigned, Canal Commissioner in charge of the western division of the canals, respectfully presents the following as his annual report for the fiscal year ending September 30, 1876:

	Miles.
This division embraces that portion of the Erie canal extending	•
from the east line of Wayne county to Buffalo	149
The Genesee Valley canal, extending from Rochester to Olean	, 107
The extension of said canal from Olean to Mill Grove pond, or	1
the Allegany river	6
And the Dansville branch, extending from the Junction a	t
Shakers to Dansville	11
Total length of main line	273

There are also seventeen miles of feeders, three only of which are navigable, and three reservoirs, to wit.: Rockville, Oil Creek and Ischua, the reservoirs being on the Genesee Valley canal.

#### ENGINEER DEPARTMENT.

This department was in charge of Charles A. Olmsted, as division engineer, from the 10th day of November, 1875, to and including the 28th day of February, 1876. From the 1st day of March, 1876, this department has been under the immediate charge of William H. Searles, as division engineer, assisted by Byron M. Hanks, as resident engineer, with a corps of competent assistants; all have during the year faithfully discharged every official duty devolving upon them.

#### WATER SUPPLY.

The supply of water for the Erie canal, upon this division, is obtained almost entirely from Lake Erie, through Black Rock harbor, and the Tonawanda creek, at Pendleton. Tonawanda and Oak Orchard creeks, at Medina, Genesee Valley canal and Genesee River

feeder, at Rochester, afford no permanent and reliable supply during the summer months. Of the feeders, the Genesee River feeder at Rochester alone lends material aid in filling the canal at the first opening in the spring.

The water in Lake Erie the past season has been unusually high, and there has been no difficulty experienced in keeping the water well up on the lower level at Lockport, and as far east as Medina. East of Medina, and between Albion and Rochester, during the very hottest weather boatmen complained of low water. The flow of water between those points was not sufficient to fill the channel of the canal to standard height. The accumulation of eel-grass and loss from evaporation tended somewhat to decrease the flow of water, but the chief cause of the difficulty was owing to trespasses committed upon the rights of the State by persons whose entire moral sense deserts them when their individual interests come in conflict with those of the State.

REPAIR SECTIONS — APPOINTMENT OF SUPERINTENDENTS AND GEN-.
ERAL CONDITION OF NAVIGATION.

There are four repair sections upon the Erie canal on this division, numbering from eight to eleven, inclusive, together with the Genesee Valley canal consolidated into one section, on the 21st day of January, 1874.

Repair section No. 8, Erie canal.

Extends from the east line of Wayne county to the east line of Monroe county.

Repair section No. 9, Erie canal.

Extends from the east line of Monroe county to the west end of construction section No. 284, in the village of Brockport.

Repair section No. 10, Erie canal.

Extends from construction section No. 284, in the village of Brockport, to and including the guard-lock west of the city of Lockport.

Repair section No. 11, Erie canal.

Extends from the head of the guard-lock at Sulphur Springs, west of Lockport, to the city of Buffalo, including the Main and Hamburgh Street and Clark and Skinner canals, Erie and Ohio basins, with their slips, and Black Rock harbor.

At a meeting of the Canal Board, held at the city of Albany on

the 18th day of February, 1876, P. Jerome Thomas, of the town of Rose, was appointed superintendent of repair section No. 8, Erie canal, to take effect on the 1st day of March, 1876.

At a meeting of the Canal Board, held at the city of Albany on the 1st day of March, 1876, William H. Bunn, of Brockport, Monroe county, was appointed superintendent of repair section No. 9, Erie canal, to take effect on the 1st day of March, 1876. Upon the same day and at the same meeting of the Canal Board, Ebenezer W. Williams, of the city of Lockport, county of Niagara, was appointed superintendent of repair section No. 10, Erie canal, to take effect on the 1st day of March, 1876.

At a meeting of the Canal Board, held at the city of Albany on the 16th day of March, 1876, Patrick Short, of the city of Buffalo and county of Erie, was appointed superintendent of repair section No. 11, Erie canal, to take effect on the 1st day of April, 1876.

At a meeting of the Canal Board, held at the city of Albany on the 30th day of March, 1876, William A. Kirkpatrick, of Cuba, Allegany county, was appointed superintendent of the Genesee Valley canal, to take effect on the 1st day of April, 1876.

The above named persons, after being thus severally appointed, entered upon their duties as superintendents of the several sections to which they had been assigned, and are still in charge of them.

By a resolution of the Board of Canal Commissioners, the Erie canal was ordered to be opened for navigation on the fourth day of May last. The Erie canal upon this division was opened at that time; there have been no breaks to detain boats, and the canal has been, through the season, in good repair, and, with the exception of low water for a few days, between the points above referred to, navigation has been good.

# REPAIRS OF ERIE CANAL.

REPAIR SECTION No. 8.

P. J. Thomas, Superintendent.

This section is thirty-nine (39) miles in length, extending from the east to the west line of Wayne county. From the commencement of the fiscal year, up to March 1, 1876, the section was in charge of S. D. Streeter, as superintendent; since that date it has been in charge of the present incumbent, and this report shows the whole amount expended by each superintendent during the fiscal year ending September 30, 1876.

The mechanical structures upon this section are as follows: Nine (9) double lift locks; fourteen iron truss road bridges; eighteen wood road and change, and eight wood farm bridges; three composite and nineteen (19) stone culverts; two (2) cast-iron pipe culverts; two wooden trunk aqueducts; two (2) lock and nine (9) watchhouses.

The number of sunken boats were as follows: One at Lockville; ran against pier at head of lock; detention to navigation, none.

There has been maintained during the present season of navigation, on lower miter-sills, at each of the locks on this section, seven feet of water.

The several locks upon the section have been repaired	,	
by renewing and repairing miter-sills, replanking and		
repairing bottom, repairing bucking timber, guard-		
irons on walls, pointing up masonry, the total cost		
of which was	<b>\$321</b>	56
Lock tending has cost	5,774	72
Oil for locks cost	83	99
Two new lock gates have been built and inserted, and		
all the old gates repaired by putting on new running		
plank, repairs to and inserting new valves, new bolts,		
repairs to connecting rods, new cleating and plank,		
new strips, at a cost of	1,465	70
Palmyra aqueduct has been repaired by building new		
trunk, concreted and grouted around piers and wings,		
masonry at both ends taken up and relaid; Lyons		
aqueduct repaired by new planking and waste gates,		
the total cost of which was	1,621	07
The waste-weir near Clyde lock has been repaired by		
building new superstructure, costing	228	<b>53</b>
Farm bridges (wood) have received repairs to roadways		
and joists, costing	1,11	92
Road bridges (wood) have received repairs to roadway,		
consisting of new planking and joists, new ceiling,		
repairs to planking, and painting, at a cost of	<b>902</b>	20
All the iron road bridges have received repairs to road-		
ways, consisting of new planking and joists, side-		
walks, iron railing and approaches repaired and		
painted, at a cost of	1,884	<b>04</b>

One new State scow has been built, and the other two		
repaired and painted, costing	\$1,714	64
Ice breaker has received repairs, at a cost of	13	90
The several watch-houses have been repaired by putting		
down new flooring, ceiling, windows, doors, costing	178	37
The towing-path and berme banks on the entire section		
have received more or less repairs; a large amount		
of graveling has been done upon all the levels, at a		
cost of	5,529	91
All the levels have been bottomed out at points most		
needed, at a cost of	1,612	10
New docking, and repairs of old, have cost	640	64
Vertical wall at Fort Gibson has been taken up and		
relaid, and wall on Macedon level repaired, at a cost of	476	<b>43</b>
Breaking ice and assisting boats, in consequence of ice		
have cost	188	86
Watching banks of canal has cost	847	70
New wheelbarrows, and repairs to old, have cost	26	80
New tools, and repairs to old, have cost	186	28
There have been expended for clerk hire, rent of store-		
house, and other miscellaneous matters	1, 690	96
Cleaning ditches upon the different locks has cost	187	<b>54</b>
Mowing weeds upon the different levels has cost	247	86
Foot bridge at lock No. 3 has received repairs to railing,		
and two new chords inserted, at a cost of	24	00
New iron pipe for drain, across canal in village of		
Clyde, has been purchased at a cost of	80	31

The following-named work should be done before the opening of navigation next spring: Eight new lock gates should be built, a part of which shall have to be used in the spring.

# Summary of Expenditures.

Expended by superintendent for new works	\$2,796	74
Expended by superintendent for ordinary repairs	15,364	<b>45</b>
Superintendent's salary	875	00
Clerk hire	525	00
• <u> </u>		

\$19,561 19

Expended by S. D. Streeter, superintendent, from October 1, 1875, to March 1, 1876:		
Expended for new work	<b>\$</b> 413	47
Expended for ordinary repairs	6,565	37
Superintendent's salary	625	00
Clerk hire	375	00
· ·	<b>\$</b> 7, 978	84
$Recapitulation. \  \  $		
Expended by P. J. Thomas, superintendent	\$19,561	19
Expended by S. D. Streeter, superintendent	7, 978	84
•	<b>\$27,</b> 540	03

Vertical walls at glass factory in village of Chyde and at Pitt lock should be built, the material for which is on hand.

The foundation of Lower Macedon berme-lock gave way near the head-gate, on the culvert side, some time in September, and has not been used since. When filled the water forced down under the foundation and chamber wall and came up in the culvert.

To continue its use in such a condition would endanger the safety of both locks, and hence only the tow-path lock has since been used. After the water is drawn from the canal the foundation will require overhauling, and the space underneath the same and the side wall well filled with cement, and the timbers and foundation of both lock and culvert thoroughly secured, when the lock will be rendered safe. The masonry does not seem to have sustained any injury. The expense will not probably exceed \$200.

# Repair Section No. 9.

William H. Bunn, Superintendent.

This section is forty miles in length, extending from the east line of Monroe county to the west end of construction, section No. 284, in the village of Brockport, including the Genesee River feeder and the structure connected therewith, and the towing-path bridge over the Genesee Valley canal at its junction with the Erie canal.

From the commencement of the fiscal year up to March, 1876, the section was in charge of James H. Warren, as superintendent. Since that time it has been in charge of the present incumbent.

The mechanical structures on this section are as follows: Five double locks, four stop-gates, one stop dam, one Genesee River aqueduct, eight waste-weirs, one overflow spill-way, one weigh-lock, two cast-iron pipe culverts, thirty-nine stone and composite culverts, two wood farm, twenty-one wood road, eight iron and wood road, one wood tow-path change, one iron tow-path change, two iron swing and thirty-one iron road bridges, three lock and five watch-houses, one workshop one timber shed, one storehouse, and one dam and bulk-head.

The several locks upon the section were thoroughly repaired before the opening of navigation, and with		
	<b>\$1,51</b> 0	o K
the repairs during the season have cost the sum of	-	
Lock tending has cost the sum of	3, 222	
There has been expended for lighting locks	70	
Lock-gates made and inserted cost the sum of	255	05
Repairs to flooring of aqueduct cost	133	<b>75</b>
There has been expended for repairs to Brockport		
waste-weir the sum of	187	<b>62</b>
There has been expended for repairs to the Brockport		
and wooden box culvert at Pittsford	221	44
Repairs to Rochester weigh-lock, consisting of repairs		
to suspension rods, gates, triangle irons and readjust-		
ing scales, cost the sum of	167	85
Many of the wood bridges on this section have received		
repairs, consisting of new needle-beams, posts and		
flooring, at a cost of	1,580	03
The iron bridges upon the section have received exten-		
sive repairs to rods, iron needle-beams, oak joists and		
flooring, at a cost of	845	00
Repairs to the State scows have cost for caulking,		
painting, new rails, shoes and dockage, together with		
necessary tools, the sum of	436	49
The swing bridges at Exchange and West Main streets	100	Τυ,
and the towing-path swing-bridge over Child's slip,		
in the city of Rochester, have received considerable		
	1 509	Λ9%
repairs which, together with attendance and oil, cost,	1,523	Uð
Repairs to ice-breaker, watch-houses, workshops and	100	20
making snubbing posts, cost the sum of	192	69
There has been expended for raising and repairing tow-		
path and berme banks on the whole section the sum of,	5,145	92

The amount expended during spring repairs in bottoming out the canal on the whole section was	
ing out the canal on the whole section was \$2,906 3.  The dam at the head of the Genesee River feeder has been repaired at a cost of	
been repaired at a cost of	
The slope and vertical walls in many places have been	38
relaid and stone furnished, at a cost of 989	25
Docking through the city of Rochester and at other	
points upon the section has been repaired and rebuilt	
at a cost of	67
Breaking ice and assisting boats in consequence of ice,	^^
cost the sum of	JU
Watching canal banks and structures and regulating water and lights have cost	10
Wheelbarrows have cost	
There has been expended for tools, including shovels,	20
picks and crow-bars, the sum of	57
Other miscellaneous expenditures have cost 5,347	- •
There has been expended for building new bridge on	-
the section during the fiscal year the sum of 4, 508	
	<b>48</b>
m . 1	
Total\$33,048	
Summary of Expenditures.	
Summary of Expenditures.  Expended by superintendents for new work or struc-	63
Summary of Expenditures.  Expended by superintendents for new work or structures	63
Summary of Expenditures.  Expended by superintendents for new work or structures	63 = 17 46
Summary of Expenditures.  Expended by superintendents for new work or structures.  Expended by superintendents for ordinary repairs 25,700 established Salaries of superintendents	17 46 50
Summary of Expenditures.  Expended by superintendents for new work or structures	17 46 50
Summary of Expenditures.  Expended by superintendents for new work or structures.  Expended by superintendents for ordinary repairs 25,700 established Salaries of superintendents	17 46 50
Summary of Expenditures.  Expended by superintendents for new work or structures. \$4,848  Expended by superintendents for ordinary repairs. 25,700 & Salaries of superintendents	17 46 50
Summary of Expenditures.  Expended by superintendents for new work or structures	17 46 50
Summary of Expenditures.  Expended by superintendents for new work or structures . \$4,848  Expended by superintendents for ordinary repairs . 25,700 expended by superintendents . 1,562 expended hire 937  Total . \$33,048 expended by James H. Warren, superintendent, from October 1, 1875, to February 29, 1876, dates inclusive:  Expended for new work or structures . \$2,583 expended for new work or structures . \$2,583 expended structures . \$2,583 ex	17 46 50 63 —
Summary of Expenditures.  Expended by superintendents for new work or structures	17 46 50 63 —
Summary of Expenditures.  Expended by superintendents for new work or structures	17 46 50 63 — 24 50
Summary of Expenditures.  Expended by superintendents for new work or structures	17 46 50 63 — 24 50

Expended by W. H. Bunn, superintendent, from March		
1, 1876, to September 30, 1876, dates inclusive:		
Expended for new work or structures	\$2,264	93
Expended for ordinary repairs	19,020	96
Superintendent's salary	875	00
Clerk hire	525	00
Total	\$22,685	89
Recapitulation.		
Recapitulation.  Expended by James H. Warren, superintendent	<b>\$</b> 10,362	74
- · · · · · · · · · · · · · · · · · · ·	\$10,362 22,685	
Expended by James H. Warren, superintendent  Expended by W. H. Bunn, superintendent	\$33, 048	89 63
Expended by James H. Warren, superintendent	22,685	89 63

# REPAIR SECTION No. 10.

# E. W. Williams, Superintendent.

This section is forty-eight miles long, and extends from the west end of construction section No. 284 in Brockport, to and including guard-lock west of Lockport. It also includes the "Oak Orchard Creek feeder." By resolution of the Canal Board the number of this section has been changed from eleven to ten. From the commencement of the fiscal year up to January 13, 1876, this section was in charge of William McRae as superintendent, and from that date to March 1, 1876, it was in charge of James Jackson, Jr., Canal Commissioner, and from March first it has been in charge of the present incumbent, and this report shows the whole amount expended by each superintendent during the fiscal year ending September 30, 1876. The mechanical structures are as follows:

Five double combined lift-locks, one guard-lock, one State race, four bulk-heads, two stop-gates, sixty-six culverts, ten waste-weirs, one aqueduct, one wrought-iron swing bridge, thirty-one road (wood) bridges, twenty-eight road (iron) bridges, four tow-path (wood) and four farm (wood) bridges, one dam, one lock and tool-house, one work-shop, and two timber sheds.

There has been maintained during the present season of navigation, on lower miter-sills at each of the locks on this section, seven feet of water. The number of sunken boats during the present summer is as follows: One at Middleport and one near Holley's creek — each sprung a leak.

An old boat abandoned and sunk near guard-lock was		
removed at an expense of	<b>\$</b> 15	<b>5</b> 0
ber and November, 1875, at an expense of	57	00
The combined locks and guard-lock have been kept in		
good repair during the fiscal year, and were exten-		
sively repaired before the opening of navigation last		
spring by taking out, repairing and resetting, and put-	•	
ting in new culvert valves, repairing wood miter-sills,		
gas fixtures, chains, rods, levers, lining to bottoms,	1 050	Λ0
and other general repairs, at an expense of  There was expended for building new lock-gates and	1,258	Uð
inserting three new ones, the sum of	854	32
There was expended for repairing lock-gates the sum of,	25	
There was paid for lighting the locks with gas, and for		
oil for locks and lock-gates, the sum of	598	59
The amount paid for lock-tending was	6,670	<b>7</b> 8
Gauging and regulating water and taking out flood-	•	
wood has cost the sum of	623	<b>7</b> 8
Tending swing bridge has cost	647	80
There has been paid for repairing the swing bridge at		
Albion, and for oil and fuel and tools for cleaning		
the dams, the sum of	122	
Watching the canal has cost	3,106	02
The waste-weirs over the whole section have been re-		
paired at a cost of	992	
Repairing culverts has cost the sum of	357	10
There has been expended for rebuilding road bridges	1 015	99
(wood) the sum of	1,615 5,079	
There has been expended to repair road bridges (iron)	5,015	90
the sum_of	514	68
A new foot bridge (wood) has been built across the	011	00
State race, in Lockport, at a cost of	98	71
The stop gate, east of Holly, and the one west of Holly,		
have been thoroughly repaired, at a cost of	698	<b>7</b> 8

The bulk-head in the State race at Lockport has been		
repaired, at a cost of	<b>\$24</b> 6	30
A new horse-way has been built four miles west of Lock-		
port at a cost of	170	67
The State scows, E. Kirk Hart and John D. Fay, have	•	
been extensively repaired, which together with the		
items furnished them has cost the sum of	1, 556	95
A large amount of bottoming out was done during the	-	
spring repairs, including the removal of large slides		
of earth and rock, in Deep Rock cut, west of Lock-		
port, at a cost of	3,428	61
Two new gas lamps were put in under the big bridge,		
in Lockport, to light tow-path, at a cost of		12
Repairing docking has cost the sum of	429	
New docking timber has cost the sum of	116	59
The tow-path and berme bank on the entire section		
have received more or less repairs; the berme bank		
at Shelby basin was in very bad condition, and has	•	
been strengthened, and a large amount of grading	•	
has been done upon the tow-path the whole length	K 000	^^
of the section, at a cost of	5,220 $142$	
The thistles and weeds have been cut the whole length	142	ου
of the section, and the eel-grass cleared from the bot-		
tom of the canal, at a cost of	340	<b>۲0</b>
Burying dead horses has cost the sum of	26	
There has been paid for new tools and repairing old	20	30
ones, of all kinds, the sum of	323	35
New vertical wall was built at Orangeport at a cost of,	173	
Slope and vertical walls have been repaired the whole	210	-
length of the section at a cost of	3,753	17
Repairing a small breach, cost		80
Breaking ice, and assisting boats in consequence of ice,		
cost the sum of	441	70
Building dams has cost the sum of	167	18
Other miscellaneous expenditures have cost the sum of,	1,804	68
The salary of the superintendent cost	1,375	00
The sum expended for clerk hire was	687	<b>50</b>
Total	\$43,816	<b>52</b>

# Summary of Expenditures.

Summary of Expensionres.		
Expended by superintendents for new work or struc-		
tures	<b>\$</b> 3,282	93
Expended by superintendents for ordinary repairs	38,471	09
Superintendent's salary	1,375	00
Clerk hire	687	.50
Total	<b>\$4</b> 3,816	52
Expended by William McRae, superintendent, from October 1, 1875, to January 13, 1876:		
Expended for new work or structures	\$2,266	17
Expended for ordinary repairs	8,103	15
Superintendent's salary	500	00
Clerk hire	162	<b>5</b> 0
Total	\$11,031	82
Expended by James Jackson, Jr., Canal Commissioner, for ordinary repairs (there being a vacancy in office of		
superintendent), as per abstracts	<b>\$3,196</b>	87
Recapitulation.		
Expended by E. W. Williams, superintendent	\$32,784	70
Expended by Wm. McRae, superintendent	11,031	82
	<b>\$4</b> 3,816	
Expended by James Jackson, Jr., Canal Commissioner,	3,196	87 —
Total	<b>\$47</b> ,013	39

There has been no detention to navigation on this section during the past season.

The waste-weir at Eagle Harbor, which was destroyed by a break that occurred in 1873, should be rebuilt before the opening of navigation next spring.

The road bridge (wood) two miles east of Albion, known as "Jaquith's bridge," is in a dangerous condition, and should be replaced by a new one.

The first road bridge (wood) east of Hulburton, known as Cole and Devere's bridge, should be rebuilt.

The Hastings road bridge (wood), one and a-half miles east of Medina, should be rebuilt.

The town line or State road bridge between Shelby basin and Middleport should be replaced by a new one.

The above four bridges can be replaced by new ones, partly iron and partly wood, at a probable cost of \$1,200 each.

The Pine Street bridge (iron) in Lockport is in a very bad condition, on account of a great many of the uprights being split and broken, and the lower works sway badly when teams are crossing. It should be rebuilt.

The Jackson street bridge (wood) in Lockpoit should be rebuilt. Four new gates should be put in the guard-lock west of Lockport; two in the bulk-head and two in the lock.

The mason work between the State race and locks in Lockport should be relaid. The frost has worked the seams open so that they leak badly, and unless the wall is relaid it may give way entirely.

One hundred and forty feet of new retaining wall should be built at Eagle Harbor.

# REPAIR SECTION No. 11. Patrick Short, Superintendent.

Section No. 11 is twenty-eight miles in length, and extends from Sulphur Springs guard-lock to Buffalo, including Main and Hamburgh and Clark and Skinner canals, Erie and Ohio basins and slips, and Black Rock harbor.

The mechanical structures on the section are as follows: One ship-lock, one river lift-lock, one double guard-lock with feed gates, twenty-one iron road bridges with iron needle beams, six iron road bridges with wood needle beams, two road bridges, iron and wood combined, eleven wood, road and farm bridges, two iron swing and wood draw-bridges, one lift-bridge, four iron and wood and one wood tow-path bridges, two wood tow-path bridges, three large and numerous small culverts, two spill-ways, one dam and bulk-head, one Erie basin break-water, one Bird Island pier, one stone jetty pier at entrance of Erie basin, and one pile jetty pier at entrance of Black Rock harbor.

From the commencement of the fiscal year to the first day of April last, this section was under the immediate charge of the Canal Commissioner of the western division, without a superintendent. Since April 1, 1876, it has been in charge of the present incumbent,

and the expenditures thereon, to and including the thirti September, have been as follows:	eth day	of
Repairs of iron and wood work of locks, including four new gates for river lock at Tonawanda, and oil and	î	
items for same, cost the sum of	<b>\$</b> 723	<b>75</b>
Lock-tending cost the sum of	1,364	
Bridge-tending, including oil for same, cost the sum of	638	
Building new draw bridge over Scajaquada creek, cost	1,382	09
Repairing bridges over whole section, including extensive repairs of long tow-path bridge, at Pendleton,		
and draw bridge at Pratt's Furnace, cost the sum of,	6,785	83
Repairs of wood work of waste-weir, at Tonawanda,		
cost	155	70
Repairs of Black Creek dam, Tonawanda dam, and		
Ellicott Creek dyke, cost the sum of	206	<b>54</b>
Constructing new horse-hole cost the sum of	270	<b>79</b>
Raising and repairing tow-path and berme banks,		
including dredging for same, cost the sum of	7,713	<b>40</b>
Repairs to slope walls cost the sum of	<b>6</b> 0	<b>5</b> 0
Laying new and relaying old docking, including piles,		
cost the sum of	5,140	41
Driving piles in the city of Buffalo and Tonawanda		
creek cost the sum of	3,899	34
Dredging out bottom of canal in city of Buffalo to		
deepen same, on Squaw island and below Black Rock,		
to strengthen the banks, cost the sum of	3, 261	<b>75</b>
Repairing breaches in Bird Island pier, including gen-		
eral repairs of same, cost the sum of	6,966	66
Repairs of division bank on Squaw Island, and below		
Erie Mills, made necessary by the high water of July	-	
eleventh, cost	314	67
Cleaning out old canal at Pendleton, and cutting weeds on whole section, cost the sum of	171	53
Removing sunken boats from Tonawanda creek cost	·	
the sum of	<b>26</b> 0	15
Removing and disposing of dead animals cost	200	
Watching canal, regulating water at Black Rock and		
inspecting bridges, cost the sum of	2,051	87
Repairing State scows cost the sum of	428	97
Purchase of stone scow cost the sum of	600	00

Building new pile-driving machine and furnishing with engine cost the sum of	10	43 00 53 50 00
Total	\$45,794	03
Summary of Expenditures.		
Expended by superintendent for new work on structures	<b>\$3,23</b> 8	22
Expended by superintendent for ordinary repairs	41,355	81
Superintendent's salary	750	00
Clerk hire	450	00
_	<b>\$</b> 45, 794	03
Expended by James Jackson, Jr., Canal Commissioner, during six months vacancy in office of Superintendent on section, for ordinary repairs	<b>\$24,590</b>	07
Recapitulation.		
Expended by Patrick Short, superintendent, from April 1, 1876, to September 30, 1876  Expended by James Jackson, Jr., Canal Commissioner	\$45,794 24,590	
Total	<b>\$</b> 70, 38 <b>4</b>	10

The water in Lake Erie has been unusually high the past season, and consequently upon the upper levels of the canal, and navigation has been uninterrupted over this section.

The high water and ice of the spring caused two breaches in Bird Island pier, which were enlarged by the rush of water; and, when commencing to repair them in July, they had become very formidable; the crib foundations had been carried out, and the breaches extended to the bottom of the river. The remainder of the pier had also become much shattered, and necessary repairs have been continued over the whole pier; this work added largely to the expenditures of the section.

The high water of July eleventh caused a slight breach in the division bank on Squaw Island, which was repaired at a small expense, but it served to produce uneasiness as to the security of the remainder of the bank, extending from Clinton Mills to the ship-The division bank at Erie Mills, and the towlock at Black Rock. ing path exposed to the river below the guard-lock at Black Rock, were in some places leaking badly, and had become worn by the These have been repaired by dredging and casting up from the inside, and riprapping with stone on the exposed face. The locks have received extensive and needed repairs, including four new gates for the river lock at Tonawanda. The bridges have received the usual repairs to flooring joists and abutments, and very thorough repairs have been made to abutments of the swing bridge over Ohio basin slip; a general overhauling and strengthening of the long towing-path bridge at Pendleton; also thorough repairing of Ransom's creek and Newhouse bridges. A new draw bridge has been built over the Scajaquada creek, near Pratt's furnace, and repairs to same have made it quite an item of expense. A new pile-driving machine has been built, and furnished with engine and machinery complete, and, since its completion, the middle of June last, it has been constantly at work driving piles in Ohio basin and slip, to secure docking and fender piles; in Commercial slip for foundation to vertical walls, and to secure docking at the ship lock; to repair docking at the entrance to the lock at Tonawanda, and in Tonawanda creek, extending from Tonawanda to Pendleton; to secure docking, as fender piles, and to protect the banks from washing and sliding.

The dredge, Genesee Valley, and tug, A. P. Lanning, have also been in constant service during the whole season in dredging out of deposits in Ohio basin, Commercial slip and Erie canal, between Commercial slip and Georgia Street bridge. The expense of raising and repairing the towing-path and berme bank has been considerably increased by the use of the dredge in carting up and depositing on the banks, and by reason of purchasing gravel, and, in most cases, transporting a considerable distance by boat. Laying new docking in several places and repairing the old—including capping piles—has been quite expensive.

The improvements necessary to be made within the year approaching are a new bridge over the Erie canal, at York street, consisting of two spans of ninety feet each; a new tow-path bridge over Tonawanda creek, at Pendleton, consisting of two spans of fifty feet each;

a new tow-path bridge over Ransom's creek; also the Hamilton Street bridge, at Black Rock, should be raised or a new one in its place, as the present one is low and faulty in design. New docking is needed around Ohio basin, and on each side of Clark and Skinner canal. A new derrick boat is required on this section, and would save its cost to the State in one season.

I would also recommend the construction of a yard and State shop, on the open space below York street, as a place for securely storing tools, lumber and other State property.

#### GENESEE VALLEY CANAL.

#### W. A. Kirkpatrick, Superintendent.

This canal has been in charge of D. H. Scanlin, as superintendent, from the commencement of the fiscal year up to the 13th day of January, 1876. From that date up to the 1st day of April, 1876, this canal was under the charge of the Canal Commissioner, without a superintendent, and from the first day of April to the present time it has been in charge of the present incumbent. This canal extends from Rochester to Mill Grove, and, including the Dansville branch, extending from its junction at Shaker to Dansville, comprises a distance of 125 miles.

The mechanical structures on this canal are as follows: Four guard-locks, 114 lift-locks, nine dams, six bulk-heads, nineteen aqueducts, thirty-one waste-weirs, 109 culverts, ninety-six wood farm bridges, one wood farm and change bridge, ninety wood bridges, four wood road and change bridges, seven wood towing-path bridges, two wood foot-bridges, twenty-four iron road bridges, thirty-eight lock-houses, two workshops and one wooden trunk.

The repairs upon this canal from April 1, 1876, to September 1, 1876, dates inclusive, were as follows:

All the locks have received more or less repairs, consisting of new lining, miter-sills, together with repairs		
to gates, and have cost the sum of	<b>\$1,568</b>	<b>4</b> 8
The several aqueducts have received more or less		
repairs, at a cost of	946	21
The waste-weirs have been repaired at a cost of	220	35
Two wood road and three wood farm bridges have been		
rebuilt, which, together with repairs to most of the	•	
others on the canal, have cost the sum of	3, 199	28

CANAL COMMISSIONERS.	18	35
Iron road bridges have received slight repairs, costing		
the sum of	<b>\$300</b>	75
of	136	<b>4</b> 0
sum of	279	79
Lock-houses have received slight repairs, costing Raising and repairing tow-path and berme bank have	6	29
cost	2,134	65
the sum of	4,760	36
repairs to others, have cost the sum of	2,729	<b>42</b>
Watching canal has cost	1,090	95
Breaches caused by spring floods have been repaired at		
a cost of	696	
Tools, wheelbarrows, and repairs of same have cost	199	
Slight repairs to culverts have cost	53	
Raising outlet of Oil Creek reservoir cost	199	-
The slide at Portage during spring repairs cost	1,579	
Cutting eel-grass, thistles and weeds cost	569	
Rent for storehouse and storage cost	40	
Repairs to slope-walls have cost	66 9	
Repairs to docking has cost the sum of	30 '	•
Special foremen have been paid	1,427	
There have been paid for lock-tending	4,594	
Cleaning on creeks has cost	<b>5</b> 5	9 <b>9</b>
itures amount to the sum of	1,231	28 —
	<b>\$2</b> 8,116	81 <del></del>
Summary of Expenditures.		
Expended by superintendent for new work or struc-		
tures	\$1,064	51
Expended by superintendent for ordinary repairs	26,302 3	30
Superintendent's salary paid W. A. Kirkpatrick	375 (	00
Clerk hire	375	00

#### Recapitulation.

Expended by D. H. Scanlin, superintendent, to Janu-		
ary 13, 1876	\$7,815	30
Expended by Commissioner Jackson (without superin-		
tendent)	2,583	<b>34</b>
Expended by W. A. Kirkpatrick, superintendent, from		
April 1, 1876	28, 116	81
Total	<b>\$</b> 38,515	45

The repairs on locks will probably cost next year about the same as this. Extensive repairs will be needed on aqueducts at Olean. The south aqueduct on extension will have to be built new all above the chords, at a cost of about \$1,500. The cost of repairs on the other two at Olean will probably amount to \$1,000. The balance of the line will require only ordinary repairs. It will be necessary to build about five new bridges, at a cost of about \$1,250. The rest will need only ordinary repairs. Haskell Creek waste-weir and Cuba waste-weir will require new gates, and a large portion of the wood work will have to be rebuilt at a probable cost of \$500. balance of the structures, as far as can now be known, will need only ordinary repairs. There have been no delays to navigation by breaches or otherwise, except some slight delays, owing to low water in the Genesee river at Oramel. There has been a depth of four feet of water on the lower miter-sills of locks on this canal. It will require about the same amount of money appropriated to maintain navigation upon this canal next year that it has cost the past season.

TABLE No. 1.

Work completed (or contracts canceled by Canal Board) and final accounts paid during fiscal year ending September 30, 1876.

#### ERIE CANAL.

	PAID BY	DRAFT.	
CHARACTER OF WORK.	Amount paid during fiscal year	Amount previously paid.	Total.
EXTRAORDINARY REPAIRS.  Protecting canal against encroachments of Lake Erie  Deepening and improving canal from slip No. 3, in the city of Buffalo, to York street and thence to head of Black Rock harbor, including constructing division	\$36,788 94	<b>\$</b> 114, 563 00	\$151,851 94
bank through said harbor to a point about 1,200 feet below Ferry street bridge in the city of Buffalo	78. 279. 69	259, 250 00	887, 529 69
Removing the remains of State dam on Scajaquada creek and the bars in said creek adjacent	89 00	510 00	599 00
Lockville, between the locks.  Dredging Black Rock harbor.  Cleaning out, improving and deepening canal an average of six inches below established grade between Thomas creek and Macedon lock.	2, 196 59 8, 327 00	16, 983 00 9, 678 00	19, 179 59 18, 000 00
age of six inches below established grade between Thomas creek and Macedon lock	6, 340 89	2,890 00	9, 230 89
Constructing vertical in place of slope walls at Clyde and Pitt lock	985 00		935 00
Total	\$132,957 11	\$403,869 00	\$536, 826 11

#### TABLE No. 2.

Work in progress at close of fiscal year ending September 30, 1876.

The following named work, authorized by the Legislature and the Canal Board, was under contract and final accounts unpaid at the close of the fiscal year ending September 30, 1876:

*	PAID BY	DRAFT.	
EXTRAORDINARY REPAIRS.	Amount paid during fiscal year.	Amount previously paid.	Total.
Constructing a road bridge over the canal in highway leading from the Palmyra road to the Cartersville road in the town of Pittsford	\$2,832 31	\$221 00	<b>\$2</b> , 558 81
GENESEE VALLEY	CANAL.		
EXTRAORDINABY REPAIRS.  Deepening summit level from lock No. 97 to entrance of feeder from Oil Creek reservoir		<b>\$</b> 969 00	<b>\$</b> 969 00

Final account made out, but not certified by State Engineer.

#### STATEMENT,

Showing the expenditures upon this division, for and during the fiscal year ending September 30, 1876.

<u></u>			
NAME OF WORK OR EXPENDITURE.	Amount paid during fiscal year.	Amount previously paid.	Total.
ORDINARY REPAIRS.	** ***		
General management, commissioner's salary and travel Clerk hire, office rent and contingent expenses of Cana	l) ' '		\$2,800 00
Commissioner's office at Lockport			4,022 1
Total	\$6,822 15		<b>\$</b> 6, 822 1
<i>i</i>	•		
ERIE CANA			A0# #40 0
Repair section No. 8	\$27,540 03 33 180 79		\$27, 540 00 88 180 70
Repair section No. 9 Repair section No. 10 Repair section No. 11 Engineering, inspecting and incidental expenses	33, 180 79 47, 013 89		88, 180 7 47, 013 8
Repair section No. 11	70, 384 10		70,384 10
Engineering, inspecting and incidental expenses	640 00	••••	640 0
Total	\$178, 758 '81		\$178,758 3
GENESEE VALLEY	CANAL.		
ORDINARY REPA			
Rensirs anon whole canal	1 497 765 45 I	I I	\$37, 765 4
Superintendent's salary	\$87, 765 45 750 00		\$37, 765 44 750 00 288 4
Superintendent's salary. Services of division agent Repairs to Troup Street bridge, Rochester.	288 47 300 00		288 4' 300 0
Engineering, inspecting and incidental expenses	96,00	····	96 0
Total	\$39, 199 92		\$39, 199 9
ERIE CANAI	·		
Extraordinary R	EPAIRS.		
On contracts for construction, as per Table No. 1 On construction contracts, as per Table No. 2	\$182,957 11 2,382 81	\$403,869 00	\$536, 826 1
On construction contracts, as per Table No. 2	2, 332 31	221 00	2,558 8
Land damages	674 99 2, 200 00	•••••	674 9
Land damages  Counsel fees before canal appraisers  Engineering, inspecting and incidental expenses	4, 160 50		2, 200 0 4, 160 5
Total	\$142, 324 91	\$404,090 00	\$546, 414 9
	<u> </u>		
GENESEE VALLEY		****	
On construction contracts, as per Table No. 2 Land damages	\$400 00	\$969 00	\$969 0 400 0
Total	. \$400 00	<b>\$</b> 969 00	\$1,869 0
	RIE CANAL.		
ENLARGEMENT OF ER			
Drafts and certificates of awards made by Canal Board	€6 796 04		ac man n
	\$6,726 04		\$6,796 0
Drafts and certificates of awards made by Canal Board and canal appraisers	\$6,726 04		<b>\$6,726</b> 0
Drafts and certificates of awards made by Canal Board	\$6, 726 04 VALLEY CA		\$6,726 0

#### SUMMARY.

	Amount paid during fiscal year.	Amount previously paid.	Total.
General management Ordinary repairs, Erie canal Extraordinary repairs, Erie canal Enlargement, Erie canal Ordinary repairs, Genesee Valley canal Extraordinary repairs, Genesee Valley canal Construction Genesee Valley canal Total	\$6,822 15 178,758 31 142,824 71 6,726 04 89,199 92 400 00 1,290 33	\$404,090 00 969 00 \$495,059 00	\$6, 822 15 178, 758 31 546, 414 91 6, 726 04 39, 199 92 1, 369 00 1, 290 33

#### TABLE No. 3.

Showing the amount of work done for which finals were rendered during the following years, including engineering and miscellaneous expenditures connected therewith.

#### EXTRAORDINARY REPAIRS — ERIE CANAL.

#### 1873

1873.		
Character of Work.	Amour	nt.
Rubble wall, east end of Rochester aqueduct	<b>\$80</b> 0	85
Bridge over Mill street, Black Rock (award to J. B.		
Griffin)	1,992	00
Vertical wall opposite stone-yard of Squire & Phillips,		
Hulburton, Orleans county	1,437	21
Tile drain at Lyons, Wayne county,	175	00
Inserting iron needle-beams in bridges at Washington		
and Ford streets, Rochester	2,715	15
Swartz's lift bridge over Pratt's slip through tow-path,		
lower Black Rock	1,721	09
Inserting wrought-iron needle-beams and repairing		
Commercial, Lloyd, Amherst and Canal Street		
bridges, Buffalo	12, 910	98
Vertical wall opposite Sullivan's quarry, Albion	936	<b>5</b> 8
Iron pipe culvert, on three-mile level, Brighton	7,019	78
Setting back berme abutment and building iron bridge		
at Lockville	4,998	73
Vertical wall front of Underhill, Braman & Co., Brock-		
port	1,813	67
Raising and improving Sulphur Spring guard-lock	7,341	31
Iron swing bridge over slip connecting Ohio basin		
with Buffalo harbor, at Ohio street, Buffalo	7,379	79
Removing deposit from Black Rock harbor	39,622	<b>4</b> 0

Waste-weir on Lock Berlin level (new location)	<b>\$</b> 3, 025	28
Rebuilding Hamilton Street bridge of iron, Buffalo	4,197	96
Vertical wall along premises of H. A. Robertson, Mid-		
dleport	1,733	22
Receiver at White's creek, Wayneport	3,034	13
Iron bridge, etc., on Nelson street, Rochester	6,713	5 <b>9</b>
Vertical walls at Bushnell's basin and Cartersville	3,114	70
Iron bridge at Smith street, Rochester	2, 601	20
Iron tow-path bridge at junction Erie and Genesee	•	
Valley canal, Rochester	1,991	48
Vertical wall on berme bank along premises of A.		
Mesler, Gasport	911	53
Doubling lower lock at Lockville	33, 495	31
Doubling middle lock at Lockville	41,308	
Doubling upper lock at Lockville	36,366	90
Doubling Pittsford lock	34,289	23
Doubling Lock Berlin lock	33,643	69
Doubling lock No. 1, east of Rochester	49,699	<b>59</b>
Patent fee for Heath's tumble gates in Lock Berlin,		
Poor-house, lower, middle and upper locks at Lock-		•
ville; also Pittsford and lock No. 1, east of Roch-		
ester	798	00
Tumble gates and platform in the Old Poor-house and		
Lower Macedon locks	4,499	99
Iron bridge on section 275, town of Ogden	5,16 <b>5</b>	16
Dredging Erie basin, Buffalo	7,374	<b>62</b>
Docking and cleaning out State ditch, immediately		•
north of Tonawanda creek, village of Tonawanda	2, 328	41
Protecting canal against encroachments of Lake Erie,		
between head of Black Rock harbor and Erie basin		
breakwater (canceled)	1,635	<b>25</b>
Deepening canal from first lock east of Rochester, west		
to Lyell street (canceled)	51,354	28
Reducing bottom of canal in sections 277, 278, 282,		
283, 285 and 286	5,776	<b>56</b>
Deepening and improving canal from slip No. 3, to		
about 1,200 feet below Ferry street, Buffalo (can-		
$\operatorname{celed}) \ldots \ldots \ldots$	9,970	28
Deepening and improving canal from slip No. 3, to		
about 1,200 feet below Ferry street, Buffalo, and	•	
expended by Canal Commissioner (canceled)	79,507	38

Iron protection railing on South Saint Paul street,		
Rochester	\$871	
Doubling Poor-house lock	35,995	49
Iron road bridge over Tonawanda creek, near Bush's		Ω4
place and Martinsville	14,323	<b>24</b>
Total	\$566,522	20
1874.		
Removing bench-walls and constructing slope wall and		
pavement between Lyons and Lockville	\$59,507	72
Doubling Clyde lock	34,277	92
Doubling lower Macedon lock	36,360	<b>78</b>
Doubling Miller's lock	38,438	98
Doubling lock No. 3, east of Rochester	40,227	92
Doubling lock No. 2, east of Rochester	46,194	<b>23</b>
Removing material from prism of canal sections 207,		
208, 209 and 212	2,989	15
Iron bridge on town line between Gates and Greece,	6,976	<b>02</b>
Vertical wall at Fairport (berme side)	1,485	95
Additional roadway track to change bridge over Erie canal in the village of Tonawanda on the road lead-		
ing to Grand Island ferry	3,368	77
Constructing 200 feet of vertical wall in front of		••
premises at Whitmore, Rathbun and Brady, one mile		
east of Albion	804	88
Constructing about 150 feet vertical wall in front of		00
premises of Isaac Holloway, east of Bidwell's bridge,		
three miles east of Albion	699	47
Constructing 275 feet vertical wall at Spencerport,		T,
Monroe county	1,341	74
Constructing 100 feet vertical wall at Adams' basin	469	
Constructing three wood bridges over State ditch at		02
Adams, Broad and Morgan streets, in the village of		
Tonawanda	3,135	14
Constructing protection wall and repairing approaches		
to a bridge near lot No. 97 of Niagara reservation	249	87
Removing about 150 feet slope wall and substituting		٠.
vertical wall therefor in front of premises of Nelson		
McCormack, about one mile east of canal collector's		
office, Medina	943	52
Vanity and and a contract of the contract of t	010	-

Constructing 70 feet vertical wall, village of Gasport, Constructing 150 feet vertical wall, village of Fairport, Constructing road and purchasing lands for that purpose in the town of Ogden	<b>\$</b> 323 732 765	24
Repairing and reconstruction of docking on Clark and Skinner canal, city of Buffalo	1,917	
Macedon, Miller's and locks 3 and 2, east of Rochester, Improved channel discharge from Rochester weigh-	570	00
lock	2,315 4,000	
Total		
1875.		
Doubling Lyons lock		94
and military road, in the village of Tonawanda Improving channel discharge from the Rochester weigh-	17,392	17
lock	1,142	41
Skinner canal, in the city of Buffalo  Dredging Ohio basin, including Ohio canal from Elk street to Ohio basin, and Ohio slip from Ohio basin	5,082	61
to Buffalo harbor	6,214	60
Dredging Erie basin, in the city of Buffalo Constructing 100 lineal feet vertical wall in the village	4,259	98
of Pittsford, in front of Eckler's warehouse Constructing 125 lineal feet vertical wall in front of premises of J. W. Parker and others, in the village		16
of Port Gibson, Ontario county	591	00
wide water west of tow-path change bridge, to the east end of Genesee River aqueduct, in the city of Rochester	19,533	34

necting Averill and Munger streets, and Emmerson and Goodman streets, including the removal of the		
old structure at Caledonia avenue and Buffalo street,		
in the city of Rochester	<b>\$35,600</b>	72
Constructing sluice or drop culvert leading from State	φουγουσ	
ditch to Erie canal at Murphy's farm, in the town of		
Lockport, Niagara county	3,192	32
Constructing vertical in place of slope walls at Orange-		
port and Middleport, in all about 450 lineal feet	1,665	70
Constructing vertical in place of slope walls on Erie		
canal at Medina and Knowlesville, in all about 300		
lineal feet	1,108	68
Constructing vertical in place of slope walls in Erie		
canal at Brockport, Adams' basin and Spencerport,		
in all about 744 lineal feet	3,612	<b>43</b>
Constructing vertical in place of slope walls on Erie		
canal at Fullam's basin, in all about 300 lineal feet	1,482	77
Constructing about 400 lineal feet of vertical and slope		
wall on berme side of Erie canal at head of lock No. 1,		
east of Rochester	951	16
Cutting off bend in towing-path of Erie canal and con-		
structing vertical wall and slope walls, and work con-		
nected therewith, to improve the approach to and	2 244	
entrance to Macedon lock	3,244	01
Constructing wrought-iron double track bridge, with		
sidewalks and iron needle beams, over the Eric canal	7 440	
on South St. Paul street, in the city of Rochester	7,419	17
Total	\$132,172	44
,		
1876.		
Protecting canal against encroachments of Lake Erie	\$151,351	94
Deepening and improving canal from slip No. 3, in		
the city of Buffalo, to York street, and thence to head		
of Black Rock harbor, including construction of		
division bank through said harbor to a point about		
1,200 feet below Ferry Street bridge, in the city of		
Buffalo, (contract canceled)	337,529	69
Removing the remains of State dam on Scajaquada		
creek, and the bars in said creek adjacent	599	00

Dredging Black Rock harbor	Constructing vertical wall on both sides of the canal at Lockville, between the locks	<b>\$</b> 19,179	59.
Cleaning out, improving and deepening canal, an average of six inches below established grade, between Thomas Creek culvert and Macedon lock			
Constructing vertical in place of slope wall, at Clyde and Pitt lock	Cleaning out, improving and deepening canal, an average of six inches below established grade, between		
Engineering, inspecting and incidental expenses 4,160 50  \$540,986 61  Genesee Valley Canal.  1873.  Cast-iron pipe culvert at Cuylerville, Livingston county Iron bridge, Clinton street, Hinsdale 2,246 62  Abutments and docking at east end of dam across Genesee river at Mount Morris 12,886 05  Wooden bridge at Woodville, Livingston county 800 00  \$19,295 71  1874.  Raising towing-path bank of Genesee Valley canal on the four and six-mile levels \$1,791 53  1875.  Constructing culvert through Genesee Valley canal, near Plymouth Avenue bridge, in the city of Rochester, act chapter 399, Laws 1874 2,367 65  Constructing bridge over the Genesee river at Mount Morris, used as a towing-path of the canal, act chapter 399, Laws of 1874 4,740 00	Constructing vertical in place of slope wall, at Clyde		
Genesee Valley Canal.  1873.  Cast-iron pipe culvert at Cuylerville, Livingston county Iron bridge, Clinton street, Hinsdale			
Genesee Valley Canal.  1873.  Cast-iron pipe culvert at Cuylerville, Livingston county Iron bridge, Clinton street, Hinsdale	Engineering, inspecting and incidental expenses	4,160	<b>5</b> 0
Cast-iron pipe culvert at Cuylerville, Livingston county Iron bridge, Clinton street, Hinsdale	_	\$540,986	<b>61</b>
Cast-iron pipe culvert at Cuylerville, Livingston county Iron bridge, Clinton street, Hinsdale	GENESEE VALLEY CANAL.		
Abutments and docking at east end of dam across Genesee river at Mount Morris	1873.		
Abutments and docking at east end of dam across Genesee river at Mount Morris	Cast-iron pipe culvert at Cuylerville, Livingston county	\$2,364	04
Abutments and docking at east end of dam across Genesee river at Mount Morris	Iron bridge, Clinton street, Hinsdale	7	
Genesee river at Mount Morris	Abutments and docking at east end of dam across		
Wooden bridge at Woodville, Livingston county 800 00  \$19,295 71  1874.  Raising towing-path bank of Genesee Valley canal on the four and six-mile levels \$1,791 53  1875.  Constructing culvert through Genesee Valley canal, near Plymouth Avenue bridge, in the city of Rochester, act chapter 399, Laws 1874 2,367 65  Constructing bridge over the Genesee river at Mount Morris, used as a towing-path of the canal, act chapter 399, Laws of 1874 4,740 00	Genesee river at Mount Morris	12,886	05
Raising towing-path bank of Genesee Valley canal on the four and six-mile levels	Wooden bridge at Woodville, Livingston county	•	
Raising towing-path bank of Genesee Valley canal on the four and six-mile levels		\$19,295	71
the four and six-mile levels	1874.		
Constructing culvert through Genesee Valley canal, near Plymouth Avenue bridge, in the city of Rochester, act chapter 399, Laws 1874	0	<b>\$1,791</b>	53
near Plymouth Avenue bridge, in the city of Rochester, act chapter 399, Laws 1874	1875.		
Morris, used as a towing-path of the canal, act chapter 399, Laws of 1874	near Plymouth Avenue bridge, in the city of	2,367	<b>65</b>
ter 399, Laws of 1874	Constructing bridge over the Genesee river at Mount		
Total	77 - 77 - 7	4,740	00
	Total	\$7, 107	65

#### EXTRAORDINARY REPAIRS.

The work "for deepening and improving the canal from slip No. 3, in the city of Buffalo, to the head of Black Rock harbor, and for deepening and widening the canal through said harbor and constructing a division bank therein, and other work connected therewith, so as to make the canal separate and independent of said harbor," now

remains in the same situation it was in at the date of my last annual report. In describing a portion of this work at that time, I used the following language: "The work, from Station 0 to Ferry street (a distance of 101 chains), is left, at present, in an unsatisfactory condition. The cribs are in place from station 0 to station 20, filled with earth and weighted with stone; at that point there is an opening of seven chains and one-half, in the deep channel leading to Ship lock, for the passage of vessels; thence for a distance of about nineteen chains, the cribs are in place and filled, with the wall partly built a portion of the way, extending to another opening in the deep channel four chains and one-half wide; thence to Ferry street a distance of about fifty chains, cribs are in place, filled and well built on both sides of the same and filled in between with earth, but not coped with timber, as contemplated in the plan of the work.

"I regard this portion of the work in an unsafe condition, as the walls are liable to become displaced, and timbers from top of cribs to be carried off by the thick ice and storms, and the work otherwise damaged.

"The work should be completed upon the plan adopted at an early day, in order that the State may derive some benefit for the money already expended and secure the object intended, viz., a canal independent of Black Rock harbor."

At the time of the breaking up of the ice in the harbor last spring, and just before the opening of the Erie canal for navigation, there were discovered two large breaches in Bird Island pier, which separates Black Rock harbor from the Niagara river, which allowed the discharge of vast quantities of water from the harbor, and had not the water in Lake Erie been unusually high, navigation upon this division of the Erie canal must have been very much injured, if not wholly suspended. The recurrence of such an event with the water of Lake Erie at an ordinary stage, is, at any time, liable to occur, and I deem it my duty to call the attention of the Legislature to the importance of completing this work at an early day. In addition to the material now on hand for this work, it is estimated that the sum of \$30,000 would be sufficient to complete the work according to the plan adopted. I recommend an appropriation of that sum for this purpose.

All of which is respectfully submitted.

JAMES JACKSON, JR.

Comparative receipts of flour and grain at the ports of Chicago Milwaukee, Detroit, Toledo, Cleveland and Duluth, from January first to November twenty-seventh, in the years indicated.

	1876.	1875.	1874.	1878.
Flour, barrels	5,328,787	4,568,861	5,038,814	4,437,331
Wheat, bushels	45,237,976 53,904,446 16,971,823 6,713,231 1,486,100	59,011,454 84,427,372 15,733,837 4,761,371 907,190	67,422,421 46,812,942 18,538,306 4,449,245 1,029,610	56,186,468 51,457,436 23,890,463 5,516,659 1,476,310
Total bushels	124,313,576	114,840,724	138,252,524	138,527,336

## AGGREGATE shipments of flour and grain from the ports of Chicago, Milwaukee, Duluth, Detroit, Toledo and Cleveland, for the period specified.

	From Jan 1 to	From Jan. 1 to	From Jan. 1 to	From Jan 1 to
	Nov. 25, 1876.	Nov. 27, 1875.	Nov. 21, 1874.	Nov. 22, 1873.
Flour, barrels	5,490,007	4,725,469	4,644,093	4,546,907
Wheat, bushels	40,962,519	53,654,519	59,347,493	52,446,771
	53,104,300	33,108,860	39,287,742	47,318,329
	15,586,411	13,989,307	14,226,552	19,583,888
	3,546,547	2,808,569	2,589,216	3,714,542
	1,366,694	418,762	414,682	1,104,392
Total bushels	114,566,471	103,980,017	115,865,685	124,167,922

## Receipts of flour and grain at Buffalo, by lake, from January first to December first, in the years indicated.

	1876.	1875.	1874.	1873.
Flour, barrels	777,335	1,690,859	1,394,588	1,134,216
Wheat, bushels Corn, bushels Oats, bushels Barley, bushels Rye, bushels	18,487,375 20,919,054 2,393,971 909,656 724,695 12,907	32,182,753 22,125,411 7,275,255 761,289 190,426 146,468	28,468,400 23,610,947 4,556,296 741,618 49,570 55,520	29,858,577 28,391,328 5,856,946 1,048,462 904,611 56,350
Total bushels	43,447,658	62,681,602	57,482,351	66,116,274

Shipments of grain from elevators of Buffalo by the Erie and Central railroads, from January first to December first, in the years indicated.

	1876.	1875.	1874.	1873.
Wheat, bushels Corn, bushels Oats, bushels Barley, bushels Rye, bushels	5,045,935 6,276,326 676,104 85,630 227,095	5,288,620 5,996,220 1,930,569 58,937 14,786	4,268,080 5,045,202 1,316,597 189,277 10,318	3,616,714 3,634,539 1,296,783 270,081 65,459
Total bushels	12,311,090	13,289,132	10,829,474	8,883,576

Shipments of flour and grain by canal from Buffalo during the years mentioned.

	1876.	1875.	1874.	1878,
Flour, barrels	2,137	54,351	49,182	13,750
Wheat, bushels	12,577,243 12,720,138 1,656,292 263,965 435,900	28,177,151 9,750,199 2,288,037 58,158 80,071	21,627,048 16,418,841 2,754,915 146,800 8,000	24,773,422 20,982,809 3,207,143 368,062 785,441
Total bushels	27,653,538	35,353,611	40,955,604	50,130,447
Additional, barley malt, bushels	215,233	153,854	90,954	Not included

Shipments of lumber, shingles and staves by canal from Buffalo during the years mentioned.

	1876.	1875.	1874.	1878.
Lumber; feet	17,160,000	65,485,538 30,780,000 77,924,443	80,081,779 28,265,390 159,220,204	120,196,960 19,067,000 185,143,862

The following table shows the amount of tolls collected at Buffalo during the years mentioned:

1876	\$583,644 42	1871	1,389,886 77
1875	789,830 24	1870	1,058,625 62
		1869	
1878	1,415,492 27	1868	2,037,687 01
		1867	

The following statement shows the number of boats cleared from Buffalo during the years mentioned:

1876	4.853	1871	8.759
1875	6,365	1870	6,790
		1869	
1873	9,058	1868	7,699
1872			

Statement showing lake freights on wheat and corn from Chicago to Buffalo, by sail vessels, on the dates specified, 1876.

		Wheat.	Corn.	ı	•	Wheat.	Corn.
May	16	24	•••	Aug.	21	24	2
May	22	$2\frac{7}{4}$		Aug.	28	$2\frac{1}{4}$	2
May	29	2 <u>1</u>	. 2	Sept.	4	21	2
June	5	2 <del>4</del>	$2\frac{1}{4}$	Sept.	11	2	21
$\mathbf{J}$ une	12	$2\frac{1}{4}$	21	Sept.	18	٧ž	21
June	19	$2\frac{1}{4}$	$2\frac{1}{4}$	Sept.	25	$2\frac{1}{4}$	21
June	26	$2\frac{1}{4}$	2	Oct,	2	4	34
July	3	. 2 <del>1</del>	2	Oct.	9	41	4
July	10	$2\frac{1}{4}$	2	Oct.	16	41	4
July	17		18	Oct.	23	41	4
July	24	• • •	1 <del>1</del>	Oct.	80	41	٠ 4
July	31		11	Nov.	6	8	31
Aug.	7		11	Nov.	13	3 <u>ī</u>	3
Aug.	14		11	Nov.	20	3 <del>1</del>	3

Average for the season: Wheat, 3 cents; corn,  $2\frac{1}{2}$  cents

Statement showing the ruling rates of canal freights to New York from Buffalo (tolls included, excepting for staves), on the dates specified in 1876.

	Wheat.		Corn, Oats, per bush.	Lu	Lumber.		
DATE.	per bush.	per bush.		Pine, per M.	Hard wood, per M.	Staves, per ton, over tolls	
[ay 4	8						
[ay 8	71	6	41	<b>\$</b> 3 75	<b>\$</b> 5 00	\$1 50	
[ay 15	$6\frac{1}{3}$	6	41	3 80	5 00	1 5	
ay 22	61	58	4	3 75	5 00	1 3	
ay 29	61	51	4	3 65	4 90	1 3	
me 5	6₽	51	4	8 75	5 00	13	
me 12	6 <del>1</del>	51	4	3 75	5 00	13	
ine 19	6	51/2	3 <del>2</del>	3 50	4 75	1 3	
ne 26	6 <del>1</del>	6	4	3 50	4 75	1 3	
uly 3	$6\frac{1}{2}$	6	3 <del>7</del>	3 50	4 75	1 3	
aly 10	6 <u>1</u>	54	3 <del>1</del>	3 50	4 75	1 3	
uly 17	5 <del>2</del>	51	3 <u>4</u>	3 50	4 75	1 2	
aly 24	5 <del>§</del>	51	3 <del>2</del>	3 50	4 75	12	
ıly 81	5∦	51	8 <u>4</u>	3 50	4 75	1 2	
ug. 7	5∯	51	3 <del>2</del>	3 50	4 75	1 2	
ug. 14	5#	51	3 <u>‡</u>	3 50	4 75	1 2	
ug. 21	5∯	51	3 <u>∓</u>	3 50	4 75	1 2	
ug. 28	6 <del>1</del>	6	4	3 50	4 75	1 2	
pt. 4	5 <del>2</del>	5 <del>1</del>	8 <del>2</del>	3 50	4 75	13	
pt. 11	6	5 8	3 <u>₹</u>	3 50	4 75	1 3	
pt. 18	6	5 <del>ặ</del>	44	3 50	4 75	13	
pt. 25	64	6 1	41	3 75	5 00	1 3	
ct. 2	6 <u>ई</u>	61	5	3 75	5 00	1 3	
ct. 9	$7\frac{7}{4}$	7	51	4 00	5 25	16	
ct. 16	8	74.	54	3 75	5 00	16	
ct. 23	81	71	54	3 75	5 00	1 6	
ct. 30	10	91	7	3 75	5 00	1 6	
ov. 6	71	7	54	4 25	5 50	1 7	
ov. 13	61	6	51	4 25	5 50	1 7	
ov. 20	71	7	54	4 25	5 50	1 7	
Average	610	6	4100	<b>\$</b> 3 <b>6</b> 9	\$4 93 <del>1</del>	<b>\$</b> 1 4:	

the season of navigation, from May 4 to December 1, 1876, a period of 212 days.

Grain boats. Lumber. Staves, shingles and hoops. Miscellaneous.	488
	4,853
Showing a daily average of	
Grain boats	17
Lumber	. 1
Miscellaneous.	3
Showing total daily average	23

Number of arrivals for the same time was 4,829; showing a daily average of twenty-two.

#### APPENDIX.

T.

[No. 60. In Senate, March 24, 1876.]

MESSAGE FROM THE GOVERNOR RELATIVE TO THE IMPROVEMENTS ON THE CANALS.

#### STATE OF NEW YORK:

EXECUTIVE CHAMBER,
ALBANY, March 24, 1876.

To the Legislature:

The results of the investigations ordered at the last session into the work on the Erie and other canals, purporting to be improvements, and known in the language of our legislation as "extraordinary repairs," have been submitted to you. They establish these conclusions:

First. The expenditures for these purposes during the last five years were, directly, about \$11,000,000, and indirectly about \$3,000,000, making \$14,000,000, and involved taxation amounting to nearly \$15,000,000. This is in addition to vast sums expended in former years.

Second. The mass of the work for which these expenditures were made was of no real utility to the public. The waste in construction—which furnished jobs to contractors, but was of no value to the State—has been even larger than the illicit and fraudulent gain.

Third. Most of the contracts were obtained by the system of unbalanced bids and other dishonest devices.

Fourth. Much of the work was executed in violation of the contracts, and is worthless.

The advantages to the State of the investigations have not been limited to the discovery of the particular frauds, nor even to the destruction of a system involving a vast annual loss to the tax-payers—demoralizing to the public service and corrupting to all governmental life. Incidentally, in arresting these practices, a fund has

been rescued from spoliation out of which a real, important and valuable improvement can be effected in the main trunks of the canals.

On the first of last month there remained, as nearly as I can ascertain, of the funds applicable to extraordinary repairs and new work,

Unappropriated to specific objects	<b>\$</b> 633,000
Existing appropriations for objects not under contract	360,000
Estimated as necessary to settle existing contracts:	
Erie canal \$347, 000	
Champlain canal	•
Oneida Lake canal	
\$383,000	
Balance after settling contracts as proposed	300,000
Sum available for new work on Champlain Canal enlarge-	
ment	270,000
Oneida lake	41,000
Total	1,604,000

I respectfully recommend the enactment of laws providing for the following measures:

First. Empowering and directing the Canal Board to close all existing contracts for extraordinary repairs, except in those special cases where, in the judgment of the board, it cannot be done without detriment to the interests of the State; and repealing all existing appropriations for extraordinary repairs.

Second. Appropriating not exceeding \$400,000 to such payments as may be just and necessary to close existing contracts, but providing that no such appropriation shall become effectual, in respect to payments on any contract, until the same shall be certified by the State Engineer, in writing, to the Canal Board, and afterwards duly approved by the Canal Board; and providing, further, that nothing in any such act of appropriation shall operate or be construed to validate or recognize any contract tainted with illegality or fraud or to waive any defense of the State in respect to any contract or any right of action in the State growing out of such contract, or of work done or required by the same; and likewise appropriating not exceeding \$100,000 for the purpose of protecting or finishing such

work as, in the judgment of the Canal Board, the interests of the State may require to be so protected or finished.

Third. Appropriating not exceeding \$400,000 to be expended with the approval of the State Engineer, and under the direction of the Canal Board, to the improvement of the water-way of the Erie canal, with a view of giving full seven feet depth of water, so far as may be practicable, at the opening of navigation in the present year; appropriating not exceeding \$15,000 for a survey and measurement of the water-way of the Erie canal for the purpose of determining its real condition and the place where it specially requires improvement; and appropriating from the residue of funds hitherto applicable to extraordinary repairs on the Erie canal, which are now or may come into the treasury, including moneys which may be withheld by the State on existing contracts or recovered by the State in respect to such contracts or work under them, such sums as may be necessary to improve the water-way of the Erie canal to a depth of seven and a half or eight feet at such places as may be found more useful or most economical.

Fourth. Appropriating such portion of the unexpended balance of former appropriations for the Champlain canal, as may be necessary to improve the water-way of that canal.

Fifth. Directing the Canal Board at the commencement of the next session of the Legislature, to report what, if any, specific improvements, other than that heretofore mentioned, are essential to the interests of the State.

The advantages of improving the water-way of the Eric canal were discussed by me in the annual message of 1875, and again in the annual message of 1876. In the special message of March 19, 1875, while showing the enormous outlay on the canals for alleged improvements, questioning the utility of most of the new constructions, exposing the fraudulent devices by which the contracts were obtained and inviting investigation as to the quality of the work, I still insisted on the immense benefits, at comparatively small cost, of improving the water-way in the following language:

"In my judgment a far more important improvement of the Erie canal would be effected by a thorough system of ordinary repairs, which would give the water-way its proper and lawful dimensions; and by progressively deepening it, wherever reasonably practicable, from seven to eight feet. As the object would be merely to enable the submerged section of the boat to move in a larger area of water,

so that the displaced fluid could pass the boat in a larger space, it would not be necessary to alter the culverts or other structures, or to carry the walls of the canal below the present bottom; and the benefit would be realized in each portion of the canal improved, without reference to any other part of the channel which should remain unchanged. In facilitating the movement of the boat, and quickening its speed, it would increase the amount of service rendered in a given time, and would thereby diminish every element of the cost of transportation. It would benefit the boatmen and carriers more, even, than one cent a bushel remission of tolls. It would be of more real utility to navigation than five or ten times its cost expended in the average manner of so-called improvements on the public works. But it is too simple, too practically useful, to enlist the imagination of projectors who seek the fame of magnificent constructions and of engineers who build monuments for exhibition to their rivals, or to awaken the rapacity of cormorants who fatten on jobs.

"I renew the recommendation of my annual message upon this subject; and particularly 'that provisions be made by law to enable the State Engineer, soon after navigation is opened, to measure the depth of water in the canal by cross-sections as often as every four rods of its length, and on the upper and lower miter-sill of each lock."

These opinions are deduced from the best engineering science, as applied to canal navigation, and are confirmed by practical experience. In the present depressed state of business is found an increased necessity and a favorable opportunity for going on with this measure. The interests of the consumers in cheap navigation, of the boatmen and forwarders for every facility in their business, the low price of materials and the scanty employment of labor, are all circumstances which conspire to demand attention to this subject, and to make the present a fit and advantageous time in which to begin the work; and I do now earnestly ask your consideration of these recommendations which I regard as of high public importance.

I avail myself of this opportunity to renew the recommendation, recently submitted to you, that a law be passed conferring on the Canal Board full powers of investigation and redress of all wrongs done to the State in respect to canal work. It seems to me quite clear that such powers ought to be vested in that body, and in every similar body, irrespective of the particular occasion.

I likewise renew the recommendation of an ample appropriation

in aid of the defenses of the State against fraudulent or unjust canal contracts, and in aid of civil and criminal actions in behalf of the State growing out of canal frauds. It is impossible to properly prepare such cases for trial without larger expenses than the State has hitherto been accustomed to make. The machinery of the State for such legal controversies is very inadequate and ineffective, compared with that of the United States government, or any other government, and needs to be supplemented by accessory measures. In recent instances we have seen rich and powerful public delinquents in the courts defending their possession of plunder and their personal liberty by very numerous counsel, stimulated by enormous fees, exceeding many times ordinary professional compensation. The effect is to demand extraordinary sacrifices of time and effort on the part of those who represent the people; to render the litigations extremely engrossing and burdensome. The State will not imitate the practice of an extraordinary rate of professional compensation, but not to foresee and provide for the attention, effort and aids commensurate with the necessity would be, practically, to abandon the assertion of the rights and the protection of the interests of the people against the wrong-doers.

SAMUEL J. TILDEN.

#### II.

[No. 74. IN SENATE, APRIL 21, 1876.]

REPORT OF CANAL COMMISSIONERS IN RESPONSE TO A RESOLUTION OF THE SENATE RELATIVE TO THE CANALS OF THE STATE.

To the Honorable the Senate of the State of New York:

In response to the resolution adopted by your honorable body on the 13th day of April, 1876, of which the following is a copy:

Whereas, The Governor, in his recent message on canal matters, recommended the initiation of a new scheme of enlarging the Erie canal at the expense of the tax-payers of this State, viz.: Deepening the prism thereof to the depth of seven and a-half or eight feet, or raising the banks to attain the same object, and an appropriation of \$400,000 to commence the work; therefore,

Resolved, That the Canal Commissioners be required to report to the Senate at the earliest date practicable:

- ·1. The condition of the Erie and other enlarged or partially enlarged canals during the past season, and the adaptation of the Erie, Oswego, Cayuga and Seneca canals to boats of 240 tons tonnage and six feet draft of water, and the capacity of our several canals to accommodate the business hitherto offering to them respectively.
- 2. Whether, in their judgment, any effect which will materially enhance the value of the Erie canal, or sensibly cheapen transportation, can be produced by the expenditure of the sums recommended.
- 3. An approximate estimate of the cost of the proposed improvement applied to the entire length of the Erie canal, and the probable time which will be required for its completion.
- 4. Whether such improvement, if the same shall be made by depressing the bottom of the canal below the original grade lines for enlargement without depressing the miter-sills of the locks, the floors of the aqueducts and the bed of the canal over the culverts would essentially benefit navigation.
- 5. An approximate estimate of the cost of this improvement, if it shall also include the adaptation of all the locks, aqueducts and culverts to the increased depth of water of seven and one-half or eight feet, and whether such improvement, if made, will improve navigation or cheapen transportation commensurate with the expense thereof. Also an approximate estimate of the cost of obtaining such increased depth of water by raising the surface six or twelve inches, including the cost of raising the banks, locks, aqueducts, wasteweirs, feeders and bridges, including in both of the above estimates the damage to adjacent property and a comparison of the relative cost of the two plans.
- 6. Whether the cutting down of the prism will not endanger the stability of existing walls and what would be the effect of the proposed change on the present water supply.
- 7. Whether the Commissioners apprehend any difficulty in opening the canals at an early day for the coming season and maintaining navigation quite as good as last year with the means at their command from the ordinary repair fund, and such further appropriations as are usually made from the revenues of the canal; and whether they deem any extraordinary appropriations necessary to this object.
  - 8. Whether \$15,600, or any sum in addition to the usual appro-

priation for the maintenance and management of the canals, is necessary in order "to determine the real condition of the canals," and whether the knowledge on this question possessed by the Commissioners, superintendents and their subordinates, together with the present engineering force, is not entirely sufficient to impart any information required upon the subject.

The undersigned, board of Canal Commissioners, respectfully report upon each of the matters referred to in the resolutions in the order in which they therein appear:

First. The board regard the following extract from the last annual report of the Commissioner for the eastern division, which was prepared soon after the close of navigation last fall, as a reply to the first inquiry:

"A season of unparalleled good navigation, and at a largely reduced cost (within the period for which the present Commissioner is responsible), is the best evidence of the propriety of the course adopted by the Commissioner in this trying emergency." "The unanimous testimony of those transacting business on the canals is that they have had an unexampled season of good navigation, and that never, in the history of the canals, have they suffered so little from detention and delays from any or all causes."

It is believed that the statement above quoted will apply with equal force and truth to the middle and western divisions.

There is no difficulty in navigating any of the canals mentioned, except the Champlain, with boats drawing six feet of water and carrying 240 tons.

The board is of the opinion that all of the canals mentioned in the resolutions (excepting perhaps the Champlain in its present condition) are capable of accommodating more than double the tonnage of 1875, or of any previous year.

Second. In the judgment of the Commissioners, no effect which will materially enhance the utility of the Erie canal, or sensibly cheapen transportation can be produced by the expenditure of the sums named in the message of his Excellency the Governor, referred to in the resolutions. The addition of a foot in depth of water through the length of the Erie canal would facilitate the movement of laden boats, but the expenditure proposed would be so trifling that no appreciable cheapening of transportation would result.

Third. The board, relying upon such data as they find in the reports of the Commissioners and the engineers of past years, and

the cost of work of like character during the process of the enlargement as well as upon careful estimates of the cost of such work, is of the opinion that the cost of the proposed improvement applied to the entire length of the Erie canal, would be not less than four and a half millions of dollars (\$4,500.000).

Fourth. Such improvement would benefit navigation (as stated in answer to the second inquiry) to some extent by reducing the resistance through the enlarged water-way, but with miter-sills, aqueducts and culverts remaining six inches or a foot above the proposed canal bottom, it is evident boats could have no increased draft, and the obstructions, bars or dams, caused by miter-sills, aqueducts and culverts, would occur so often that the gain would be so small as to leave no substantial benefit resulting or to be derived from the proposed improvement.

Fifth. The adaptation of all the locks, aqueducts and culverts to the proposed increase of depth can only be accomplished by the reconstruction of these structures from Albany to Lockport, the cost of which cannot be estimated from any data now at hand. It would be so large as to exclude it from serious consideration.

It is the opinion of the board that one foot additional depth of water, over present bottom, miter-sills, aqueducts and culverts, may be obtained without materially disturbing these structures or the prism of the caual, by raising the banks and bridges, and at a cost of not more than two millions of dollars (\$2,000,000).

In regard to land damages growing out of the proposed change in canal bottom, it is a well-known fact that a considerable portion of the Erie canal passes through porous material, or soil, which was originally puddled, or has been lined with water-tight earth and the deposit of sediment.

For many years and before the bottom and banks became solidified and the pores filled with sediment, the leeching and percolation caused great damage to adjoining lands and buildings.

The proposed work would necessarily, to a great extent, produce injuries for which the State would be called upon to make compensation. The amount of such compensation cannot be estimated.

Again, the disturbance of lining or puddling on high embankments, or over culverts or other structures in the prism of the canal, is liable to lead to results most disastrous. Breaks, and the consequent obstruction of navigation as well as damages to adjacent property, are among the results likely to follow. An estimate of the cost of

the work of reducing the prism may easily be made, but no estimate can be made of the consequences.

Sixth. The board cannot but regard reducing the prism below the foundation of the existing walls, as likely to produce slides and disturbance of the walls in many places. The effect of the proposed change upon the water supply would be this: Of course, it would require more water for the greater depth, and the quantity required to maintain it be somewhat increased, and in addition sufficient to overcome the loss of water by percolation, and waste through the bottom, which for some years would be considerable, and might, in a protracted drouth, be productive of serious difficulty in navigation.

Seventh. The board does not apprehend any difficulty in opening the canals at an early day for the coming season, and maintaining navigation quite as good as last year, with the customary amount heretofore appropriated for ordinary repairs.

Eighth. The board does not deem it necessary that an appropriation of fifteen thousand dollars (\$15,000), or any sum in addition to the usual appropriations be made in order to determine the real condition of the canals.

All of which is respectfully submitted.

ADIN THAYER,
C. A. WALRATH,
JAMES JACKSON, Jr.,

Board of Canal Commissioners.

### TABLES

ACCOMPANYING THE ANNUAL REPORT OF THE CANAL COMMISSIONERS.

ors, and average .
contract
LTEMENT showing amounts expended by superintendents of repairs and paid repair contractors, und average cost per mile on each and all canals, from 1821 to 1874, inclusive.

DE VALA	Ввіз акр Сная	RIB AND CHAMPIAIN CANALA.	USWEGO CAKAL	CAWAL	CATUGA AND	CATUGA AND SENECA CANAL.	Свяжиля	CHEMUNG CANAL.
· ·	Cost of repairs.	Average per mile.	Cost of repairs.	Average per mile.	Cost of repairs.	Average per mile.	Cost of repairs.	Average per mile.
188 188 188 188 188 188 188 188 188 188	6. 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	25 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	: කී්ස්ස්ස්ස්ස්ස්ස්ස්ස්ස්ස්ස්ස්ස්ස්ස්ස්ස්ස	######################################		25 25 25 25 25 25 25 25 25 25 25 25 25 2	* * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * *

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88,886 49,894 645,625	24, 983 20, 468 20, 468	1.00 77 .00 20 .	138, 6446 8, 069
746 746	910 975 888 888 888	11,1,1 19,1,1 19,1,1,1,1,1,1,1,1,1,1,1,1	774 888
19,965 16,427 18,848	000,000 9,000 9,000 9,000 1,00		17,811
1,569	.4.1.1.8 811.8 8.00.8 8.00.8	્યત્વ વ કુલુક જ કુલુક જુ	1, 806
288, 684 56, 684 	88,591 89,310 146	R. C. 88,89,81,588,89,81,588,89,89,89,89,89,89,89,89,89,89,89,89,8	630, 900 68, 638 47, 286
1, 877 1, 529 1, 198	1,1,4,6,6 40,40,6 6,40,60 1,00,00 1,0	1, 1, 1989 1, 1, 1989 1, 1, 1989 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	1, 518
		788, 767 789, 977 780, 965	666, 275 663, 503
1866 1866 1887	1868 1869 1870	1873 1874 1874 1874 Rep. Con. \$,900 }	1875 1876

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Statement of superintendents' expenditures—(Continued).

YEARS	CROOKED L	CROOKED LAKE CANAL.	Сикане	Сиенанео Санав.	<b>О</b> живови VA	GREESE VALLEY CANAL.	ONTEDA LA	ONEIDA LAKU CANAL
	Cost of repairs.	Average per mile.	Cost of repairs.	Cost of repairs. Average per mile.	Cost of repairs.	Average per mile.	Cost of repairs.	Average per mile.
1897.								
1828.								
1829				:				
1830		:::::::::::::::::::::::::::::::::::::::		:::::::::::::::::::::::::::::::::::::::	: : : : : : : : : : : : : : : : : : : :			
1089 4								
1933								
1834		£831						
1835		\$				:::::::::::::::::::::::::::::::::::::::		:::::::::::::::::::::::::::::::::::::::
1836		280	610 R00	1000				:::::::::::::::::::::::::::::::::::::::
1906		014	000,000	1024				
		248	17, 948					
1040	2 4	200	15, 497	159	e4 590	#19K		:
1841	900	1, 129	15,563	199	10,460	082	88.870	\$561
1843	8, 118	1,014	18, 955	251	17,749	퍯	809 ×	109
1943	4,047	<b>20</b>	15,069	52.	15, 210	868	223	2
1844	2 S	28.2	15,859	20.00	15,556	88	1,686	5. 3
:	200	080	10, 901	25	100	3	1,5	
1047	98	88.2	0.00 0.00 0.00	201	11, 938	25	17,870	, S
1948	2 2	-	200	212	96 FTT	2019	25 A	
1849	10,296	1,287	888,888	198	18, 183	28	1.18	2
1860	089 x	28	27, 189	200	18, 575	198	4.898	812
1851	5, 319	888	88		8 8	883		<b>2</b>
180%	100.5	808	200	078	200 82	5	2 2 2 2	1
1893		010	40,240		88	460	91.0	25.
10KK	4.818	582	40,080	38	40,00	35	10,440	1
1988	8 647	456	13 908	148	78	188	9	
1987	447	2	200	256	18	100	€ e	
1969	Fo	198	44,114	3	35	200	25	100
1860			26,067	200	48	3	200	35
1860	4, 598	575	28, 28	82.8	88, 518	\$	- 050	979
1861	6, 186	E	865	88	88, 450	25	878	25
1862	7,557	8	880	8	26	25	e e	
1868	5,142	38	81,887		700 00 00 00 00 00 00 00 00 00 00 00 00	200	200	83
1008	200	7 700	26,00	1860	100,221	1, 508	25	
,	774 S		700, 1001		861, ave		}	:

<b>88</b>		• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •		:					
78	:::::::::::::::::::::::::::::::::::::::	• • • • • • • • • • • • • • • • • • • •	:::::::::::::::::::::::::::::::::::::::							
<b>8</b>	8	2	88	980	902	1,904	2	516 517	4).4	70
888	<b>3</b>	8	200	000	96	130,814	200	113,238	200	#88 '08
<b>1</b> 88	- F	3	8	200	1, 208	88	404	283	<b>3</b>	 8
81,138	10,588	25 S	45, 521	90,00	122,008	90,00	88, 140	83, 818	10,044	006')
988	3	33	9	200	200	1, 23 (	300	208	250	<b></b>
7, 110	200	7, 216	980.	200	ROP '6).	9,921	2 ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (	800 1	4, 180	
99		200	P							

Statement of superintendents' expenditures—(Continued).

TEARR CORT of rogalin. Average per mile. Cost of ro								
Cool of ropairs, Average per mile, Cost of ropair	TEARS.	BLACK RIT	TEB CANAL.	OREIDA RIVER BALDWINSVI	IMPROVENERT.	Total miles.	Total cost of	Total average
### ### ### ### ### ### ### ### ### ##	٠	Cost of repairs.	Average per mile.	Cost of repairs.	Average per mile.			Į Į
### ### ### ### ### ### ### ### ### ##						007	\$232, 473	8638
### 1990		_				874	234, 433	<b>3</b>
### ### ### ### ### ### ### ### ### ##		• • • • • • • • • • • • • • • • • • • •			:::::::::::::::::::::::::::::::::::::::	8:	25 55 55 55 55 55 55 55 55 55 55 55 55 5	
1982   1982		•	:		:::::::::::::::::::::::::::::::::::::::	35	221,000	443
888						38	844,917	106
######################################						783	872, 789	<b>7</b> 69
25			:		:::::::::::::::::::::::::::::::::::::::	3	478,964	<b>E</b>
Second Color   Seco			:::::::::::::::::::::::::::::::::::::::		:	2	200	262
1988   1989	• • • • • • • • • • • • • • • • • • • •					25	400, 122	G. 2
18.00   18.0						200	492, 144	892
1940   1940	1839					25	870 789	35
## 1	1840					3	460,686	799
## 100   ##						002	857,888	611
## 100 ##		:				200	452, 559	3
### 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0					:::::::::::::::::::::::::::::::::::::::	2	383, 076	740
\$1,500 \$1,000 \$1			:::::::::::::::::::::::::::::::::::::::			2	464, 829	2
## 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16		:	:	:::::::::::::::::::::::::::::::::::::::	:::::::::::::::::::::::::::::::::::::::	21	520, 453	2
\$15.15	• • • • • • • • • • • • • • • • • • • •	:	:::::::::::::::::::::::::::::::::::::::			2	910,850	27
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20,751 607 104 887 893, 558 894, 558 1, 554 718 887 893, 558 894,		21.518	84	036.6	7.5	200	000	38
26, 689		30,731	299	100	3	86	884 588	88
24, 000 57.05 105 80.00 10		88,880	<b>35</b>	1.55	æ	<b>3</b> 8	789,088	106
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94, 956 855 1,079 54 917 850,0515 850,0		18,00	35	100	971	55	000,010	23
29, 402 29, 403 20, 1070 699 876 830, 196 876 830, 196 876 830, 196 876 830, 196 876 830, 196 876 830, 196 876 830, 196 876 830, 197 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 830, 197 876 830, 197 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 876 830, 197 8		2	200	(-)	3	5		3
83, 403		286.28	250			98	326.98	413
80, 456 81, 646 81, 646 820 830 830 830 830 830 830 830 830 830 83		2 2 2 3 3	23	1,00	<b>\$</b> 6	8	340, 187	2
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		20, 500	28	689			250, 052	33
		3	919	\$	_ 3		1, 22, 548	1,766

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1,032,884 706,686 776,119 1,719,387 1,482,806 1,185,760	
88888888888888888888888888888888888888	\$8888° 274   88
98 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	25 -
1, 068 8 180 649 158	adopted in above calculations for 1876:  Brie and Champiain  Champiain  Cayuga and Sences  Cayuga and Sences  Crocked Lake  Chonung  Chonung  Choked Lake  Choked Lake  Choked Lake  Choked Lake
12, 810 93 93 13,788 4, 099	, , , , , , , , , , , , , , , , , , ,
. 4550 28 28 28 28 28 28 28 28 28 28 28 28 28 2	alculations for 1876 — Erle. Champlain
46.911 4.828 32.328 32.7.328 32.7.328 83.445 83.445 83.445 83.445 84.516 84.076 45.045 86.045	opted in above cand Champlain e and Champlain wego canal yuga and Seneca unung oked Lake enango quesee Valley ok Kiver
	Length of Canals adopted in above calculations for 1876:  Brie and Champiain—Eric Champiain Cayuga and Seneca Chemung Croked Lake Chemango Gregese Valley Black River

Amount of expenditures by superintendents and repair contracts payments, brought from preceding page	<b>\$</b> 810, <b>7</b> 07 01
Add payments on account of canal repairs by the canal commissioners, exclusive of payments to contractors for repairs, viz.:	•
By Adin Thayer, Erie canal       \$117, 801       94         By R. W. Stroud, Erie canal       3,734       54         By C. A. Walrath, Erie canal       13,322       85         By J. Jackson, Jr., Erie canal       45,403       42	
By Adin Thayer, Champlain canal       \$325 00         By C. A. Walrath, Oswego canal       2,328 49         By James Jackson, Jr., Oswego canal       130 00         By R. W. Stroud, Oswego canal       2,098 29	\$180,262 <b>75</b>
By R. W. Stroud, Cayuga and Seneca	4,556 78
By C. A. Walrath, Cayuga and Seneca canal	3,816 57
By C. A. Walrath, Chemung canal  By C. A. Walrath, Chenango canal  By Adin Thayer, Black River canal  By James Jackson, Jr., Genesee Valley canal	2,939 45 27 25 450 00 4,275 14
-	\$196,652 94
Total amount expended for ordinary repairs from 1st October, 1873, to September 30, 1875,	1,007,359 95
Add payments on account of extraordinary repairs by canal commissioners, viz.:  Eastern division	
·	250,831 18
Total expended for ordinary and extraordinary repairs from October 1, 1872, to September 30, 1870	<b>\$</b> 1,258, <b>191 13</b>
Expenditures under special acts, and those not include for years 1871, 1872, 1873, 1874, 1875 and 1876:	d in the above
1871. 1872. 1873. 1874.	1875. <b>1876</b> .
Chenango extension \$94,068 29 \$128,246 04 \$100,219 15 \$25,339 56 Champlain improvement 22,642 85 1 170,643 35 255,948 82 51,706 30 Reconstruction of Oneida	\$317 86 8,552 49 192,190 09 \$15,968 62
Lake canal	21, 348 55 10, 423 11

# TABLE

Exhibiting the date of the opening and the closing of the Hudson river, and the number of days open; also the time of commencement and close of each navigable season of canals, and the number of days of navigation since 1824; also,

OPENING AND CLOS	ND CLOSING OF THE HUDSON RIVER.		COMMENCEMENT AND CLOS	COMMENCEMENT AND CLOSE OF NAVIGATION OF BEIR CANAL.	CAL.	
Elver open.	River closed.	Days open.	Canal open.	Canal closed.	Navigable days.	Opening of the lake.
9 1004	Jennary & 1894	300	1894	December 4	910	
March 6, 1825	er 13, 1	283	100	December 5	238	
try 25, 1826	-	305	20, 1826	18	-	
March 20, 1827	November 25, 1827	251	- 1	December 18		April 21, 18
1 1899	1820	388	4 10	December 17	230	10,
March 15, 1830	r 25, 1	888	20,1	December 17	242	May 5, 1830
15, 1831	6, 1831	262	16, 1831	-		8
		588	25, 1			27,
March 21, 1833	December 13, 1833	112	19, 1			33
February 29, 1834	November 30, 1835	162	April 17, 1834	November 90		
April 4, 1836		244	25	November 26		27
27, 1837	December 14, 1837	261	20, 1837	December 9		16.
19, 1838	November 25, 1838	257	-			23
25, 1839	November 15, 1839	900				16
Kebruary 20, 1040	November 19 1841	588	94 1841	November 90		
February 4, 1842.	November 28, 1842	308	20.			
13, 1843	December 10, 1843,	242	1843	November 30.		6
18, 1844	17,	818	18, 1844	8		14,
February 24, 1845	,	283	15, 1845	November 29		
March 18, 1846	4	275	16, 1	November 25		11,
	9	203	7	November 30.		
March 22, 1848	.,	262		December 9		
	200	982	-	December 5	219	25,
		255	22, 1	December 11	234	-
c		233	15,1		282	29
28, 1862	December 23, 1892	228	20,	December 16	253	20, 1
March 17 1864	, ox	986	-	ġ	242	April 19, 180
	1855	268	May 1 1885	December 10	766	
11. 1856	14.	248	ind	Dacamber 4		

Table exhibiting the date of the opening and closing of the Hudson river, etc.—(Continued).

	Opening of the lake.	225 April 15, 1858 222 April 17, 1859 223 April 17, 1869 224 April 13, 1861 224 April 13, 1862 225 April 23, 1865 225 April 23, 1865 225 April 23, 1865 225 April 24, 1865 225 April 26, 1865 225 April 16, 1869 225 April 16, 1869 226 April 16, 1860 227 April 16, 1860 228 April 16, 1860 228 April 16, 1860 228 April 16, 1870 228 April 16, 1870 228 April 18, 1871 238 April 18, 1871 238 April 18, 1871 238 April 18, 1871 238 April 18, 1871
ANAL.	Navi'ble days.	10000
OF NAVIGATION OF ERIE (	Canal closed.	December 8 December 12 December 13 December 10 December 10 December 9 December 9 December 12 December 12 December 12 December 12 December 12 December 10 December
COMMENCEMENT AND CLOSE OF NAVIGATION OF ERIE CANAL.	Canal open.	April 28, 1868 April 28, 1859 April 15, 1850 May 1, 1861 May 1, 1865 May 1, 1865 May 1, 1865 May 1, 1866 May 1, 1866 May 1, 1866 May 6, 1867 May 16, 1869 May 16, 1870 May 18, 1873 May 18, 1873 May 18, 1873
	Days open.	25222222222222222222222222222222222222
OPENING AND CLOSING OF THE HUDSON RIVER.	River closed.	December 17, 1858 December 19, 1859 December 19, 1859 December 19, 1880 December 11, 1885 December 11, 1885 December 18, 1886 December 18, 1886 December 18, 1886 December 18, 1886 December 8, 1887 December 9, 1889 December 9, 1889 December 9, 1889 December 9, 1889 December 17, 1870 November 29, 1873 December 29, 1873 December 29, 1873 December 29, 1873
OPENING AND CLOS	River open.	March 20, 1858 March 13, 1859 March 6, 1890 March 6, 1891 April 6, 1881 April 3, 1863 March 11, 1864 March 22, 1865 March 22, 1865 March 22, 1865 March 23, 1868 March 23, 1869 April 6, 1899 March 31, 1871 April 7, 1872 April 7, 1873 April 7, 1873 April 13, 1871 April 13, 1871

#### RATES OF TOLL-1876.

(Now in force.)

ESTABLISHED BY THE CANAL BOARD ON PERSONS AND PROPERTY TRANSPORTED ON THE NEW YORK STATE CANALS, TO TAKE EFFECT ON THE OPENING OF NAVIGATION.

[ADOPTED BY CANAL BOARD, MARCH 16, 1876.]

Toll is to be computed upon the weight ("1,000 pounds per mile") of all articles contained in the following list, unless otherwise stated, opposite to the articles excepted.

•						
	:	1875.		14	374.	
<b>A.</b>	cts.	m.		cts.		fr.
Acid, sulphuric	0	1	0	0	2	0
Agricultural implements going from tide-water,	0	1	0	0	1	5
Articles not enumerated, going toward tide-water	0	1	5	0	2	0
On the same, going from tide-water	0	1	0	0	1	5
Agricultural products of the United States, not						
particularly specified	0	1	5	0	2	0
Apples	0	1	0	0	2 2	0
Ashes, pot and pearl	0	1	5	0	2	0
Ashes, leached	0	0	5	0	0	5
В.						
Bacon	0	1	. 0	0	1	0
Barley	0	1	0	0	1	5
Barrels, empty, transported in boats	0	1	0	0	1	0
Barrels, empty, transported in rafts	0	5	0	0	5	O
Barytes	0	1	5	0	1	5
Beans	0	1	5	0	1	5
Bedstead stuff (see Lumber No. 3)	0	1	5	0	2	0
Beef, salted	0	1	0.	0	1	5
Beef, salted	0	0	5	0	1	0
Boat knees (see Lumber No. 3)	0	1	5	0	2	0
Boats, used chiefly for transportation of passen-						
gers upon all canals, per mile	4	0	0	4	0	0
On same, if they elect to commute for tolls						
upon passengers	3	0	0	3	0	0
Boats, used chiefly for transportation of prop-						
erty, per mile	2	0	0	2	0	Û
On the same, if they elect to commute for						
tolls upon passengers	2	3	0	2	3	ſ

	1875.		-1			
	cts.	m.	fr.	cts.	m.	fr.
Boats registered before July 1, 1862, whose bows						
do not conform to regulation No. 40, per mile,	2	0	0	2	0	0
Boats used exclusively in the towage of boats						
on the canals, together with the machinery						
and fuel necessary therefor, exempt from toll,	0	0	0	0	0	0
Bolts, stave, if carried in boats	0	1	0,	0	1	G
Bolts, stave, if carried in rafts	0	5	0	0	5	0
Bones	0	0	5	0	0	5
Boxes, stuff for (see Lumber No. 3)	0	1	5	0	2	0
Bran	0	1	0	0	1	0
Brick of every description	0	0	5	0	0	5
Brimstone	0	1	0	0	1	0
Broom handles (see Lumber No. 3)	0	1	5	0	2	0
Brush backs (see Lumber No. 2)	0	1	5	0	2	0
Brush handles (see Lumber No. 3)	0 -	1	5	0	2	0
Buffalo skins	0	2	0	0	·2	5
Butter	0	1	5	0	2	0
Butts, stave, if carried in boats	0	1	0	0	1	0
Butts, stave, if carried in rafts	0	5	0	0	5	0
C.						
	Λ	1	٠ ۲	Δ	1	ĸ
Cabinet ware	0	1	5 5	0	1 2	5
Carboys	Ξ		-			0
Carts	0	1	5	0	2 1	0
Car axles	0	0.	0	0		0
Car axles, when cleared at tide-water	0	Ξ.	5	0	0	5
Car wheels (iron)	0	0 1	5 5	0	0	5 C
Carriages and sleighs	0	-		0	2	-
Casks, empty, transported in boats	0	1	0	0	1	0
Casks, empty, transported in rafts	0	5 1	0	0	5	0
Castings, all iron castings	0			0	1	5
Cattle, alive	0	1	5	0	2	0
Cedar posts (see Lumber No. 2) per 1,000 feet	Λ	4	^	^	=	_
per mile	0	4	0	0	5	. 5
Cedar, red (see Lumber No. 2), per 1,000 feet per	Λ		^	Λ	_	
mile	0	4	0	0	5	5
Clasing the Constant No. 2)	0	1	õ	0	1	0
Chair stuff (see Lumber No. 3)	0	1	5	0	2	0
Charcoal	. 0	0	5	0	0	5
Cheese	• 0	1	0	0	1	5
Cider	0	1	õ	0	1	0
Clay	0	0	5	0	0	5
Clover seed	0	1	5	0	2	0
Coal, anthracite	0	0	5	0	0	5
Coal, bituminous	0	0	5	0	0	5
Coal oil	0	0	5	0	Ö	5
Coal tar, and products thereof	0	0	5	.0	0	5
Coffee	0	0	5	0	1	Ŏ
Copper ore	0	Ŏ	5	Ŏ	1	0
Copper, pig and smelted	0	0	5	0	1	0
Corn	0	1	0	0	1	5

	1	1875.		1		
	ots.	m.	fr.	cts.	m.	fr.
Corn meal	0	1	0		· 1	5
Cotton	0	1	0	0	1	0
Cullet, or broken glass to be melted over	0	0	5 5	0	1 0	· 0 5
Ounet, or broken glass to be merced over	U	U	J	U	U	J
<b>D.</b> '						
Deer skins	0	2	0	0	2	5
Domestic distilled spirits	0	1	0	0	1	5
Domestic cottons	0	1	0	0	1	5
Domestic woolens	0	1	0	0	1	5
<b>E.</b>						
Earth	0	0	5	0	0	5
Esculent roots	0	1	0	0	1	0
_			•			
Fellies (see Lumber No. 2)	Λ	1	<b>E</b>	^	0	^
Fellies (see Lumber No. 3)	0	1	5 0	0	2 1	0
Fire-proof cement	Ö	ō	5	Ö	0	5
Fish, salted, going from tide-water	ŏ	ŏ	5	ŏ	ĭ	Õ
Flax seed	0	1	5	Ō	2	0
Flour	0	1	0	0	1	5
Furniture, cabinet ware and chairs	0	1	5	0	1	5
Furniture for stoves, not cast iron	0	1	5	0	1	5
Furs, and skins of animals producing furs	0	2	0	0	2	5
<b>G.</b>						
Gas pipe	0	0	5	0	1	0
Glass ware	ŏ	ĭ	ŏ	ŏ	ī	5
Grass seed	0	1	5	0	2	0
Grease	0	1	5	0	1	5
Gunstocks (see Lumber No. 3)	0	1	5	0	2	0
Gypsum, ground and unground	0	1	0	0	1	0
Gypsum, unground product of this State	0	0	5	0	0	5
н.						
Hand spikes (see Lumber No. 3)	0	1	5	0	2	0
Hay, pressed	ŏ	ō	5	ő	õ	5
Heading, undressed, transported in boats	ŏ	ĭ	ŏ	ŏ	ĭ	Õ
Heading, dressed or partly dressed	ŏ	ī	ŏ	Ď	ī	ŏ
Heading, transported in rafts	0	5	0	0	5	Ō
Hemp, going toward tide-water	0	1	0	0	1	0
Hides	0	1	5	0	1	5
Hogs, alive	0	1	5	0	2	0
Hops	0	1	5	0	2	0
Hop poles (see Lumber No. 3)	0	1	5	0	2	0
Hop poles, transported in rafts	0	5 1	0 5	0	5 2	0
Hoop poles, transported in rafts	0	5	0	0	5	0
Hoops, rived	ŏ	1	Ö	ŏ	2	ŏ
Horses	Ŏ	3	Ŏ	Ŏ	3	ŏ

•	1875.		1874.			
Horses, used exclusively for towing boats and	cts.	m.	fr.	cts.	m.	fr.
floats, exempt from tolls	0	0	0	0	0	0
Horse shoes	ŏ	ŏ	5	ŏ	ŏ	5
Hubs (see Lumber No. 3)	Ō	1	5	Ŏ	2	Ö
I.						
Ice	0.	0	5	.0	0	5
Iron, articles exclusively manufactured of wrought or rolled iron, not specially enume-	•			·	,	
rated, when cleared at tide-water	0	0	5	0	0	5
Iron in sheets, bars and bundles	0	1	0	0	1	5
cleared at tide-water	0	0	5	0	0	5
Iron ore	0	0	5	0	0	5
Iron, bloom and pig	0	0	5	0	1	õ
Iron boiler, when cleared at tide-water	0	0	5	0	0	5
Iron, boiler	0	1	0	0	1	5
Iron, bridge and railing	0	1	0 5	. 0	1	5
Iron bolts	0	1,	0	0	0 1	5 5
On the same, when cleared at tide-water	Ö	r	5	ő	ō	5
Iron safes	ŏ	ĭ	0	ő	1	5
TION BAILED	v	-	v	v	-	U
<b>J.</b>						
Junk	0	1	0	0	1	5
•						
L.						
Lard/	0	1	0	0	1	0
Lard oil	0	1	0	0	1	0
Last blocks (see Lumber No. 3)	0	1	5	0	2	0
Lath (see Lumber No. 1) Lath (see Lumber No. 2,) per 1,000 feet per mile,	0	1	5	0	2	0
estimated at twenty feet for each bunch, of	_		Ŀ			
one hundred pieces	0	4	0	0	5	5
Lath (see Lumber No. 3)	0	1	5	0	2	0
Lead, bar or pig, going toward tide-water	0	0 1	5	. 0	0	5
Leather	0	1	0	0	1 1	5 0
Lime water	ő	1	0	0	1	Ö
Limestone	ŏ	ō	5	ŏ	ō	5
Looking-glass back (see Lumber No. 3)	ŏ	1	5	ŏ	2	ő
LUMBER No. 1.*—Transported in boats, by	•	•	·	·	~	·
weight, per 1,000 pounds, per mile.						
White pine, white wood, bass-wood, cedar, boards, plank, scantling, and on all sidings,						
boards, plank, scantling, and on all sidings,						
lath and other sawed stuff less than one inch			•			
thick (except such as is enumerated in Lumber No. 2)	^	1		^	•	^
ber No. 3)	0	1	5	U	*	Ţ

	1	1875.		1874.				
hathanat made all de Cotton and and	cts.	m.	fr.	cts.	m.	fr.		
butternut, maple, ash, elm, fir, tamarack, yew	0	1	0	O.	1	5		
and cherry  Hemlock and spruce	ŏ	ō	7	Ŏ	i	0		
LUMBER No. 2.* — Transported in boats by	•	•	•	•	•			
measurement, per 1,000 feet, per mile:								
Boards, planks, scantling, railroad ties, pickets								
for fences and sawed timber, siding, lath and								
other sawed stuff, less than one inch thick, reduced to inch measure (except such as is								
enumerated in Lumber No. 3); lath, when								
cleared by measurement, may be estimated at								
twenty feet for each bunch of one hundred				•				
pieces; and all kinds of red cedar, cedar								
posts, estimated that a cord, after deducting for openings, will contain 1,000 feet	0	3	0	٥	5	ĸ		
Hemlock and spruce, per 1,000 feet, per mile,	·	•	U	·	Ü	U		
when not weighed	0	2	0.	0	3	0		
when not weighedLumber No. 2 transported in rafts, per 1,000		_		_	_			
feet, per mile	2	5	0	8	5	O		
LUMBER No. 3.* — Transported in boats, by								
weight, per 1,000 pounds, per mile:								
Sawed lath of less than ten feet in length, split								
lath, hoop poles, hand spikes, rowing oars,								
broom handles, spokes, hubs, treenails, fellies, boat and ship knees, plane stocks, pickets for								
fences, railroad ties, last blocks, stuff (manu-								
factured or partly manufactured) for boxes,								
chairs and bedsteads, hop poles, brush han-								
dles, brush backs, looking glass backs, gun stocks, plow beams and plow handles	0		5	٥	9			
Sawed stuff for window blinds, not exceeding	U		U	U	N	v		
one-fourth of an inch in thickness	0	4	0	0	5	C		
*LUMBER shall not be cleared by measurement when carr	ied i	n a l	boat :	having	r otl	ner		
*LUMBER shall not be cleared by measurement when carr articles on board paying toll by WEIGHT, but such lumber cleared by weight.								
When a cargo is composed entirely of lumber, which can be ure, the whole of such cargo shall be cleared by measurement	clean or by	wei	y wel ght, a	ght or s the	hlp	as- per		
When a cargo is composed entirely of lumber, which can be ure, the whole of such cargo shall be cleared by measurement or master may elect, and in no case shall a portion of any such urement, and the other portion by weight.	ı car	go be	e clea	red by	me	88-		
М.					•			
Mahogany	0	1	0	0	1	5		
Malt	ŏ	î	ŏ	ŏ	$\hat{\overline{2}}$	Ö		
Manure	0	0	5	0	0	5		
Marl	0	0	5	0	0	5		
Merchandise, non-enumerated	0	1	0 5	0	1	5 C		
Moose skins '	ŏ	ž	0	ŏ	2	5		
N.	•	_	_	_		_		
Nails	0	0	5	0	0	5		

	1875.			1874.				
· 0.			_					
Oats	ots.	m. 1	fr. O	ots.	m. 1	fr. 5		
Oil cake	ő	1	Ŏ	ŏ	1	5		
Oil meal	ŏ	ī	0	ő	î	5		
Onions	ŏ	i	Ŏ	ŏ	1	0		
Onions	U	1	U	U	1	U		
Р.								
Passengers over ten years of age, per mile	Ó	0	5	0	0	5		
Petroleum or earth oil, crude and refined	0	0	5	0	0	5		
Peas	0	1	5	0	1	5		
Peat	0	0	5	0	0	5		
Pickets for fences (see Lumber Nos. 2 and 3)								
Pig copper	0	1	0	0	1	0		
Pig iron	0	0	5	0	0	5		
Plane stocks (see Lumber No. 3)	0	1	5	0	2	0		
Plaster, calcined, or plaster of Paris, going								
from tide-water	0	0	5	0	1	0		
Plow beams (see Lumber No. 3)	0	1	5	0	2	0		
Plow handles (see Lumber No. 3)	0	1	5	0	2	0		
Pork, salted	0	1	5	0	1	5		
Posts, split and round, not exceeding eight feet								
in length, carried in boats, per M., per mile	1	5	0	2	0	0		
Potatoes	0	1	0	0	1	0		
Powder and gunpowder	0	4	0	0	4	0		
R.		i,						
Rags	0	1	5	0	1	5		
Railroad chairs	0	1	0	0	1	0		
On the same, when cleared at tide-water	0	0	5	0	0	5		
Railroad iron	0	0	5	0	1	0		
Railroad ties (see Lumber Nos. 2 and 3)								
Rails for fences, not exceeding fourteen feet in								
length, carried in boats, per M., per mile On the same, if carried on rafts, per M., per	1	5	0	2	0	0		
mile	8	0	0	8	0	0		
Rice, going from tide-water	Ŏ	ĭ	Ŏ	ŏ	ĭ	Ŏ		
Roots, esculent	ŏ	ī	ŏ	ŏ	ī	Ŏ		
Rowing oars (see Lumber No. 3)	Ŏ	ī	5	Ŏ	2	Ŏ		
Rye	Ō	1	0	Ö	1	5		
		_		_	_			
<b>S.</b> .		_	_	_	_	_		
Sal soda, going from tide-water	0	0	5	0	1	0		
Salted fish, going from tide-water	0	0	5	0	1	0		
Salt, foreign	0	2	5	0	2	5		
	0	1	õ	Ŏ	1	0.		
Sand	0	0	.5	0	1	0.		
Sawed stuff (see Lumber Nos. 2 and 3)	^	^	_	^	^	_		
Sawdust	0	0	5	0	0.	5		
Scrap iron	0	0	5	0	0	5		
Sheep, live	0	1	5	0	2	0		

•	1875.		1874.			
	cts.	m.	fr.	cts.	m.	fr
Shingles, in boats, per 1,000 pounds, per mile	0	1	0	0	1	5
Shingles, in boats, per M., per mile	0	0	5	0	0	5
Shingles, per M., per mile, in rafts	0	4	0	0	4	0
Ship knees	0	1	5	0	2	0
Ship knees, transported in rafts	0	5	0	0	5	0
Ship stuffs	0	1	0	0	1	5
Shooks, stave	0	1	0	0	1	0
Shrubbery and trees	0	3	Õ	0	4	0
Siding (see Lumber No. 1)	0	1	5	0	2	,0
face measure	. 0	4	0	. 0	5	5
Skins of animals producing furs	0	2	0	0	2	5
Slate	0	0	5	0	0	5
Sleighs	0	1	5	. 0	2	0
Soda ash	0	0	5	0	1	0
Spikes	0	0	5	0	0	5
Split posts and round, not exceeding eight feet	_	_	_	_	•	_
in length, carried in boats, per M., per mile,	1	5	0	2	0	0
On same, if carried in rafts, per M., per mile,	8	0	Õ	8	0	0
Spokes (see Lumber No. 3)	0	1	5	0	2	0
Staves and heading, sawed, cut and dressed, or						
partly dressed, shooks and stave bolts and		•				
butts, not exceeding four feet and a half in	Λ	1	0	0	1	0
length, transported in boats On the same, if transported in rafts	0	1 5	Ö	ŏ	5	Ö
Steel, in bars and bundles	Ö	1	Ö	Ö	1	5
On the same, when cleared at tide-water	ŏ	ō.	~	ŏ	ō	5
Stone, for the manufacture of lime	ŏ	0	5	ŏ	ŏ	5
Stone, wrought	ŏ	ŏ	5	ŏ	ŏ	5
Stone, unwrought and partly wrought	ŏ	ŏ	5	ŏ	Ŏ	5
Stoves	Ŏ	ĭ	Ŏ	Ŏ	ì	5
Straw, pressed, and any pressed vegetable substance used for the manufacture of paper or		_		·	_	
paper pulp	0	0	5	0	0	5
Sugar	Ó	Ŏ	5	0	1	0
					-	-
Т.						
Tallow	0	1	5	0	1	5
Tan bark, per cord, per mile, carried in boats	Ŏ	5	Ŏ	0	5	Ō
Tan bark, per cord, per mile, carried in rafts	2	0	0	2	0	0
Tan bark, ground, per 1,000 pounds, per mile	0	2	5	0	2	5
Tar	0	1	0	0	·1	5
Timber, per 100 cubic feet, per mile, transported in boats:						
Squared and round, other than hemlock	0	5	0	0	6	0
Squared and round, hemlock	0	3	0	, 0	4	0
Squared and round, transported in rafts	1	0	0	1	0	0
Sawed timber (see Lumber No. 2), per 1,000						
feet, per mile	0	4	0	0	5	5
Tin plate, going from tide-water	0	0	5	0	0	5

	1875.			1874.			
M3-1 0.4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3	ots.	m.	fr.	cts.	m.	fr.	
Tobacco, unmanufactured, going toward tide-	0	1	0	0	1	0	
water	-		-				
Tobacco, going from tide-water	0	1	0	0	1	5	
Treenails (see Lumber No. 3)	0	1	5	0	2	0	
Trees and shrubbery	0	3	0	0	4	0	
Turnips	0	1	0	0	1	0	
Turpentine	0	1	0	0	1	5	
<b>v</b> .							
Varnish	Λ	1	Λ	Λ	1	ĸ	
77:	0	1	0	Ň	1	5	
Vinegar	0	1	U	U	Ţ	Đ	
<b>w.</b>							
Wagons	0	1	5	0	2	0	
Water lime	Õ	1	Ō	Ō	2 1	Ō	
Water pipes	ŏ	ō	5	ŏ	ī	ŏ	
	ŏ	1	Ô	×	ī	5	
Window blinds, sawed stuff for (see Lumber	U	1	U	U	1	Ð	
No. 3)	0	4	0	0	5	0	
Window sashes.	ŏ	4	ŏ	ŏ	5 5	ŏ	
	ŏ	4	Õ	.0	5	ŏ	
Wood for fuel, per cord, per mile	U	*	U	U	Ü	v	
Wood for fuel, per cord, per mile, carried on	_	_	_	_	_	_	
rafts	2	0	0	2	0.	0	
Wood used in the manufacture of salt, per cord,							
per mile	0	5	0	0	5	0	
Wool	0	1	0	0	1	U	
	-	-		_	_		

STATE OF NEW YORK: CANAL DEPARTMENT, ALBANY, May 3, 1870.

I certify the foregoing to be a correct list of the rates of toll this day established by the Canal Board, to take effect on the opening of navigation.

JAMES A. BELL, Auditor.

### REGULATIONS RELATIVE TO LUMBER.

The collectors of canal tolls at Rochester, Syracuse and Utica, where a boat having on board sawed lumber or cord wood which has been cleared, either by count, measurement or weight, is unloaded at either of said offices, and the collectors of canal tolls at Waterford, West Troy and Albany, in every instance where a boat having on board sawed lumber or cord wood shall pass into the Hudson river, or where the cargo is unloaded at either of said offices, which has not been measured or counted by either of them, shall require the master or owner to produce the certificate of a city inspector or measurer before a new clearance is granted to said ooat stating the count or measurement of the quantity of each kind of lumber in feet, and the number of cords of wood of which said cargo was composed; and every such inspector or measurer may give his certificate upon his own personal inspection of the count or measurement; or he may give his certificate upon th written statement of the owner or consignee of said wood or lumber, which statement shall, in all cases, be accompanied with an affidavit of the measurement or count from a person of good character, and a competent measurer of lumber or wood, in the following form, viz.:

I, , of , do swear that I have measured the entire cargo of the boat , of , of which is master, and that the following is a true statement or bill of the number of pieces, and the quantity in board measure where pieces were not less than one inch thick, and the number of pieces and the quantity in surface measure where the pieces were less than one inch thick, of each kind of lumber comprising said cargo, viz.:

[Here give the quantity of each kind of lumber in feet.]

And I do further swear, that where the were not of uniform length or width, I measured each piece, and have given the true contents of the whole, having made no deduction for defective lumber.

Sworn before me, this day of , 18 .

And the collector may also require the master of the boat to add his oath to the certificate of the lumber inspector, as follows:

I, A. B., master of the boat , of , do swear, that no part of the lumber embraced in the bill of lading and clearance was taken from said boat, from the time said clearance and bill of lading were given to me, until the same was unloaded at , on the day , 18 .

[If lumber has been previously unloaded from the same cargo, state the kind, quantity and place of unloading.]

Sworn before me this day of , 18 .

And the certificate of the said city inspector shall certify on what evidence his certificate is given, and such certificate and evidence shall be carefully preserved in the collector's office; and in every instance where, in the opinion of the collector, this certificate cannot be furnished, or where he shall have any doubts that such certificate includes the whole amount of said cargo, he shall administer an oath to the master or owner of the boat, in relation to the correctness of his clearance.

The bill of lading of each boat loaded with lumber, and destined to New York, must be verified in the following manner, to entitle such boat to a clearance, viz.:.

- 1. Where the master does not superintend the loading of the boat, the shipper, or some person who has such superintendence, must swear to the correctness of the bill of lading, as follows:
- I, of the town of · , do swear that I superintended the loading of the boat , of , of which is master, at , and that the above is a true bill of lading of said boat, and gives the number of feet in board measure, where the boards are not less than one inch thick, and the number of feet in surface measure, where the boards are less than one inch thick; and that no articles of freight of any kind, other than those specified in said bill, were put on board of said boat up to the time took charge of the boat as master.

Sworn before me this day of , 18 .

The master of the boat will be required to make the following oath:

I, A. B., master of the boat , of , do swear, that no addition has been made to the cargo of said boat since the bill of lading and affidavit annexed were delivered to me, and according to the best of my knowledge and belief, the said bill represents truly all the freight on board of said boat.

Sworn before me this day of , 18 .

- 2. Where the master superintends the loading of the boat, the bill of lading may be signed by the shipper, and be verified by the oath of the master, as follows:
- I, , master of the boat , of , do swear that I superintended the loading of the boat , of , at , and that the above is a true bill of lading of said boat, and gives the number of feet in board measure, where the boards are not less than one inch thick, and the number of feet in surface measure, where the boards are less than one inch thick, and that no articles of freight of any kind are on board of said boat, other than those specified in the bill of lading now presented to obtain a clearance.

Sworn before me, this day of ,18 .

Each boat destined to New York shall be turnished with a duplicate of its bill of lading, which must be left with the collector at the place where it enters the Hudson river.

In the measurement of timber to be floated on the canal, bark adhering to the wood and refuse stuff are to be estimated as forming part of the timber, and to be rated accordingly; and the inspectors are instructed to make their measurements according to these directions.

Whenever cord wood or sawed lumber shall be delivered to more than one owner or consignee, from the same cargo, the master of such boat shall deliver to a canal boat inspector a statement from each owner or consignee of the quantity in feet of each kind of lumber, and the number of cords of wood received by him from such cargo, and such statement shall be accompanied by an affidavit such as is first above prescribed, omitting the words "entire cargo," and substituting therefor "all of that portion of said cargo delivered to (here insert the owner or consignee's name)," and every master who shall violate the provisions of this regulation shall forfeit the sum of ten dollars.

Whenever a cargo of cord wood or sawed lumber, or any portion thereof, is unloaded at a place where there is no collector, the master of said boat shall attend to the measurement of said lumber or wood when it is delivered, and it shall be the duty of said master to deliver to the nearest collector, or the collector next in order on his passage, a statement showing the kind or kinds and quantity of all the lumber in feet, and the number of all the cords of wood so unloaded, which statement shall be sworn to before the collector to whom it is delivered; and every master who shall violate the provision of this regulation shall forfeit the sum of ten dollars.

# INFORMATION NECESSARY FOR THOSE WHO NAVIGATE THE CANALS.

### BILL OF LADING. .

Every master of a boat conveying property on a canal shall exhibit to the several collectors, hereafter mentioned, a just and true account or bill of lading of such property, signed by himself and by the consignee thereof, containing:

- 1. The name of each place on the canal where any portion of such property was shipped, and of the place for which it is intended to be cleared.
- 2. A statement of the names, description and weight of all the articles of such property, on which toll is charged by the ton, of the number of articles on which toll is charged by the number, and of the feet of each article on which toll is charged by the foot.
- 8. A specification of the weight or quantity of each article, where a different rate of toll is charged on different articles, on which toll is so computed.
- 4. No clearance of a boat and cargo shall be granted or issued by any collector of canal tolls, except upon the production to him of a bill of lading containing the above particulars.

If, on the passage, other articles are taken on board, the master must enter the number or weight of such articles on the bill.

- Property taken on within one mile of a collector's office, must pay toll at and be cleared from that office.
- Every master should know the contents of his cargo, so that he can, if required, verify his bill of lading by his oath.
- Masters who transport lumber by the pound or foot, or wood by the cord, if they take the estimate of the owner, should require him to give a bill signed by himself, and for the accuracy of which he is willing to be responsible; otherwise the master or his boat, being responsible for the treble toll to the State, may be without

remedy against the person who makes the erroneous shipping bill. [For the penalties for false bills, see 1 R. S., 1st ed., sections 123, 124 and 125.]

### CLEARANCE.

Every boat must have a clearance, and no boat can proceed beyond the place cleared to, or unlade any article before or after its arrival there until the clearance is delivered to the collector. If there be no collector there, the clearance is to be left with the last collector. For neglecting to deliver the clearance the fine is ten dollars. The master can have a certified copy for sixpence, if not over 200 words, counting each figure as a word; if over 200 words, for one shilling, and no more in any case. Copies of clearances to get toll refunded, where a collector makes a mistake, are to be furnished without charge; property transferred from one boat to another must in all cases be recleared. A boat or float whose clearance is lost, or is claimed to be lost, must be detained until it reclear and pay the toll for the whole voyage, or produce a duplicate clearance from the office where its first clearance is claimed to have been issued. If the master or owner elects to reclear, no toll will be refunded in consequence of having paid the toll a second time, unless the original clearance is produced.

#### RAFTS

Every raft navigating at night must carry a conspicuous light on the forward end of the same, and every raft moored or tied up is, at all times during the night, to have a conspicuous light at each end of each tow, near the outer corners thereof. Penalty for each offense, ten dollars.

### WEIGH LOCK.

Light Weight.—A new boat must get its light weight within thirty days after its first clearance, or be subject to a penalty of five dollars at each weigh lock. After a new boat gets its light weight, it may continue to run, not to exceed four years, without getting another light weight, and without incurring a penalty for the omission to do so, unless it be ordered again to weigh light; or, where the weight of a boat has been lessened since a light weight was obtained.

### RELATIVE TO REFUNDING.

More by Lock.—If a master be dissatisfied with an addition by one weigh lock, he should go into another; if the second lock differs from the first, and he is still dissatisfied, he may, if he chooses, go into a third, if there be one. If he passes the third without weighing, nothing will be refunded on account of the addition by the first. If he weighs in the third, the average of the locks will determine whether he shall have toll refunded or pay more.

Less by Lock.—Although a weigh lock may show a cargo to weigh less than the bill of lading, before toll will be refunded on the difference the master must/prove what particular article, and how much of it, is entered wrong on his bill, and that every other article is entered right. The cargo must be weighed in at least two weigh locks.

Toll will not be refunded on an addition made by a weigh lock in consequence of using the light weight of a previous year, except in case of addition made to a cargo under the first clearance for the season, and then only when such first clearance shall have been taken at a place where there is no weigh lock.

### ADDITION TO BOAT.

Before toll will be refunded in consequence of an increase in the weight of a boat, by ar addition made to it after a light weight has been obtained, a new light weight must be taken. Affidavits in relation to any increase to the weight of a boat, without such new light weight will not be received. Tolls will only be refunded on the first cargo after such increase in the weight of a boat was made.

### BOAT AND CARGO STOPPED SHORT OF POINT CLEARED TO.

Any collector will refund in a case where a boat for any reason cannot proceed, on the delivery of the original clearance, and the affidavit of the master that he paid the toll on the boat and cargo, and that he is the owner of the boat, or runs the same on his own account, or that he is authorized by the person or persons who did pay it (which authority shall be in writing, signed by such person or persons, and deposited with the collector), to receive and receipt for the same.

#### MIXED CARGO.

Any addition by weigh lock to a mixed cargo will be upon articles subject to the highest rate of toll, and going the farthest distance, unless the master furnishes the collector proof of the specific article which caused the addition.

### NEW BOATS.

The owner of every NEW BOAT must file with a collector a "certificate of registry," containing the name or names of the owners, their place of abode, the name of the boat, and its hailing place; also stating the tonnage of the boat, and whether it be a steamer, packet, line, lake, bull-head, open scow, or decked scow. If the owners reside out of the State, it is to be signed by the master. If the master of a boat owned out of the State be changed, the new master must file another certificate. No boat registered since the first day of July, 1862, whose bow does not conform to the 40th regulation of the Canal Board, will be allowed, under any circumstances, to navigate the canals of the State.

### NAME OF BOAT.

The name of the boat, with the hailing place, as it is registered, must be PAINTED in letters at least four inches in height, on some conspicuous and PERMANENT part of the OUTSIDE of the boat. No boat will hereafter be permitted to change its name or its hailing place; and for painting a new name or hailing place, which is considered part of the name, or for reporting a boat by a name different from the registered name, to any collector, the penalty is ten dollars.

When a person sells a boat, unless he requires the purchaser to file a certificate of "change of ownership" with a collector, he is still deemed in law the owner, and is liable for tolls and fines.

## Injuring or Obstructing the Canals—Penalties therefor.

For using a setting pole pointed with iron or other metal; for obstructing the canal by mooring a float, sinking a vessel, timber, stone, etc.; and for omitting to have a knife on the stem of the boat, there is, in the first case, a penalty of five dollars, and in the other two, of ten dollars each.

### DEDUCTION FOR WATER.

No great deduction shall be made from the weight of any boat and cargo, on account of water in the boat, by any weigh-master weighing a loaded boat, than the amount of the water credited and registered to said boat when last weighed light.

### BOATS AT NEW YORK AND BUFFALO.

Masters of boats going to New York must, on their return, produce to the collector where the boat enters the canal from the Hudson river, full and satisfactory evidence of the correctness of the clearance and bill of lading of the down cargo, and that the full tolls have been paid thereon. If this be not done, the return clearance must be refused in all cases; and such boats as do not clear at Buffalo must bring back the certificate of the canal collector in Buffalo as to the correctness of the up cargo, or the collector at Tonawanda will not clear them.

# HEIGHT OF BOATS ALLOWED ON THE ERIE, OSWEGO, AND CAYUGA AND SENECA

No boat or other craft whose height or distance from the water line of such boat or craft to the top thereof shall exceed eleven feet and three inches; and no loaded boat or other craft whose cargo or other part thereof is so arranged or placed on such boat or craft, so that the top or extreme height of the same, shall exceed eleven feet and three inches from the water line of such ladened boat or craft; and no steamboat, tug or other craft propelled by steam, whose height when the top of the dock, machinery, fixtures, or other apparatus, shall exceed eleven feet and three inches, shall be allowed or permitted to navigate either of the above named canals.

### HEIGHT OF BOATS ALLOWED ON THE CHEMUNG CANAL.

No boat or other craft whose height or distance from the water line of such boat or craft to the top thereof shall exceed nine feet; and no loaded boat or other craft whose cargo, or any part thereof, is so arranged or placed on such boat or craft, so that the top, or extreme height of the same shall exceed nine feet from the water line of such ladened boat or craft; and no steamboat, tug or craft propelled by steam, whose height when the top of the deck, machinery, fixtures or other apparatus, shall exceed nine feet, shall be allowed or permitted to navigate the Chemung canal.

## OVERDRAFT OF WATER.

No boat drawing more water than the limit prescribed by the Canal Board shall be steared by any collector; and it shall be the duty of every collector, superintendent, inspector and weigh-master to cause every boat found violating the regulations on this subject to be so far unloaded as to bring her within the prescribed limits, and in every case where a boat is so unloaded, the fact shall be entered on her clearance, with a statement of the portion of her cargo taken off; and if such boat shall be found to exceed the said draft, her master or owner shall be subject to a penalty of twenty-five dollars, to be imposed and collected by any and every collector, superintendent, inspector and weigh-master, who shall at different times and places detect such overdraft.

### COMMISSIONERS OF THE CANAL FUND.

[The Commissioners of the Canal Fund have the superintendence of the Cana. Fund, and Canal Debt.]

WILLIAM DORSHEIMER, Lieutenant-Governor.
JOHN BIGELOW, Secretary of State.
LUCIUS ROBINSON, Comptroller.
CHARLES N. ROSS, Treasurer.
CHARLES S. FAIRCHILD, Attorney-General

### CANAL COMMISSIONERS — DIVISIONS AS NOW EXISTING.

[The Canal Commissioners have the general charge of the public works, of the construction of new canals and of the repairs of the completed canals.]

Adin Thayer, in charge of the Eastern Division, viz.: The Erie canal, from Albany, including Albany basin, to east line of Oneida county; Champlain canal and Glen's Falls feeder — 188.86 miles.

Christopher A. Walrath, Syracuse, in charge of Middle Division, viz.: The Eric canal, from the east line of Oneida county to the east line of the county of Wayne, including the several feeders; the Black River Canal and feeder and improvement of Black river and reservoirs; Oswego canal; Cayuga and Seneca canal; Cayuga inlet; Chenango canal; Seneca River towing-path; Oneida river improvement; Chemung canal and feeder; Crooked Lake canal; Oneida Creek feeder; Oneida Lake canal; Baldwinsville canal—471.69 miles.

James Jackson, Jr., Lockport, in charge of Western Division, viz.: The Erie canal, from the east line of the county of Wayne to Buffalo, including the basins at Buffalo, and the Genesee Valley canal—276.40 miles.

### STATE ENGINEER AND SURVEYOR.

John D. Van Buren, Jr., prescribes duties of, and assigns divisions of canals to engineers; visits and inspects canals; prepares surveys, maps, plans, estimates, etc., in the construction or improvement of a canal, etc., etc.

### THE CANAL BOARD.

The Canal Board consists of the Commissioners of the Canal Fund, the State Engineer and Surveyor and the Canal Commissioners.

Meets at the Canal Department during the sitting of the Legislature; fixes the rates of toll; appoints the engineers, superintendents of repairs, collectors of tolls, weighmasters, their assistants, and inspectors and measurers of lumber and timber, and of boats and their cargoes; and directs extraordinary repairs; hears appeals from the Canal Appraisers; remits penalties, and regulates the police of the canals, etc.

### CANAL DEPARTMENT.

Rooms in the State Hall, in which the business of the Commissioners of the Canal Fund and Canal Board, and the business of the Auditor of the Canal Department, is required by law to be transacted.

George W. Schuyler, Auditor. [Invested with the powers and duties formerly belonging to the Comptroller in relation to the canals; draws warrants on the Treasurer for all canal payments; audits all canal accounts; instructs canal collecting and disbursing officers; keeps accounts of canal receipts and expenditures, etc.; ex officio secretary of the Commissioners of the Canal Fund and of the Canal Board.]

### CANAL APPRAISERS.

[They appraise the damage to individuals growing out of the construction of the canal. Office, State Hall, Albany.] Vivus W. Smith, Charles G. Myers, and one vacancy.

## SUPERINTENDENTS — APPOINTED FEBRUARY, 1875.

CANAL.	Sec- tion.	Name.	Residence.	Salary.
Erie	1	Michael McDonough	West Troy	<b>\$</b> 1,500
Erie	2	Benj. Van Vranken	Schenectady	1,500
Erie	3	Chas. Zielley	Fort Plain	1,500
Erie	4	Reuben C. Petrie	Little Falls	1,500
Erie	5	Joseph Faas	Utica	1,500
Erie	6	Chapman W. Avery	Jamesville, Onon-	1,500
		1	daga county	1,500
Erie	7	Elijah S. Drake	Weedsport, Cayu-	•
			ga county	1,500
Erie	8	P. Jerome Thomas	Rose	1,500
Erie	9	William H. Bunn	Brockport, Mon-	
	l		roe county	1,500
Erie	10	Ebenezer W. Williams.	Lockport, Niaga-	
			ra county	1,500
Erie	11	Patrick Short	Buffalo	1,500
Champlain .	1	James Dougrey, Jr	Mechanicsville	1,500
Champlain.	2	George Shannon	Argyle	1,500
Champlain.		John W. Ingalls	Whitehall	1,500
Oswego	1	Alex. Hamill	Baldwinsville	1,500
Oswego	2	Hiram Fox	Phœnix, Oswego	
	ļ .		county	1,500
Cay. & Sen		James A. Flanagan	Seneca Falls, Sen-	4 700
~			eca county	1,500
Chem'g and	·l	l a		****
Crooked lake		Calvin Shelton	Havana	<b>*</b> 750
Chenango		L. C. Sweet	Smyrna, Chenan-	*N-A
O T7 3		TT A T7: 1 4 1	go county	<b>*750</b>
Genesee Val.		W. A. Kirkpatrick	Cuba	<b>*</b> 750
Black River.		Samuel F. Garmon	Lowville	1,500
	<u> </u>	l		<u> </u>

<sup>\*</sup> Covers office rent, etc., and no clerk allowed.

# Collectors, Clerks and their Salaries.

COLLECTOR'S OFFICE.	Sala- ries.	No.	1	2	3	4	5
New York, Edward A. Lawrence	\$1,400	2 2	\$100	\$70			
Albany, John McKenna	1,000	2	100	80			
West Troy, James Hamill	1,400	3	100	80	\$70		
Schenectady, George W. Marlette	750	2	- 60	50		200	
Fultonville, Abraham Van Epps	600	2	60	50			
Little Falls, Addison G. Root	600	1	50				
Utica, Bernard H. Smith	850	2	80	60			
Rome, Theodore S. Comstock	850	2	80	60			
Syracuse, Jacob Pinkerton	900	2	80	60			
Montezuma, John Nolan	850	2	70	60			
Palmyra, Mark C. Finley	750	2	60	50			
Rochester, Henry E. Rochester.	900	2	80	70			
Brockport, Thomas J. Jewett	600	2	60	50			
Albion, Horace B. Burleigh	600	2	60	50			
Medina, Thomas Slack	600	2	60	50			
Lockport, L. A. Spaulding	850	2	70	50			
Tonawanda, H. B. Murray	1,000	3	80	60	50	. 540	
Buffalo, John Bissell	2,500	5	150	120	100	\$80	\$80
Waterford, Stephen Badgeley	750	2	70	50			
Fort Edward, John H. Ganley	750	2	70	50			
Whitehall, John Watkins	850	2	70	50	17.11		
Salina, Curtis M. Norton	750	2	70	50			
Oswego, W. C. Richardson	1, 200	3	80	70	50		
Geneva, E. J. Rogers	750	2	-80	60			
Watkins, W. H. Baldwin	600	1	50				1000
Boonville, Thomas S. Jones	600	1	60	135.55			1000
Corning, N. L. Somers	500						000
Oxford, Chas. M. Brown	75	per	m'th			1000	
Mount Morris, T. J. Gamble	500				1	1	
Olean, H. W. Rugg	500						

WEIGH-MASTERS.		Salary.
Albany	J. H. Mattimore	\$750
West Troy	T. Ryan	750
Utica	Wm. McSorley	750
Syracuse	Charles Cramer	750
Rochester	J. Gerling	. 80 <b>0</b>
Waterford	F. McCabe	750
Osvego		

### Assistant Wrigh-masters.

Albany	Peter Lyon.
West Troy	Wm. Shields.
West Trov	M. Kelly.
Utica	B. Martin.
Syracuse	T. H. Curry.
Syracuse	J. D. Rvan.
Rochester	T. H. Christy.
Rochester	F. Leidecker.
Waterford	John M. Galligan.
Waterford	James H Shine.
Oswego	M. Murphy.
Salary \$60 per month.	

# INSPECTORS AND MEASURERS OF LUMBER AND TIMBER AND OF BOATS AND THEIR CARGOES.

New York		Edward Reilly.
New York	**** **** ******	J. L. Berkwich.
Albany		N. J. Van Schaack.
Albany		
West Troy		
West Troy		
Utica		P. Purcell.
Syracuse		
Rochester		
Buffalo		
Buffalo		
Oswego		
Oswego		
Whitehall	•••••••	Henry Waters.
	• • • • • • • • • • • • • • • • • • • •	Trom, Habits

Salary \$3 per day, not to exceed \$600 per annum.

LIST OF TOLL DEPOSIT BANKS, 1876. DEPOSITS EQUALLY DIVIDED WHERE MORE THAN ONE BANK IS NAMED IN PLACE.

NEW YORK-East River National Bank, New York city.

West Troy.—Central National Bank, Troy; Manufacturers' National Bank, Troy; National Bank, West Troy; National State Bank, Troy.

SCHENECTADY—City Bank, Schenectady.

FULTONVILLE-National Mohawk River Bank, Fonda.

LITTLE FALLS—Herkimer County National Bank, Little Falls.

UTICA-Utica City National Bank, Utica.

Rome—Central National Bank, Rome; First National Bank, Rome; Fort Stanwix National Bank, Rome.

SYRACUSE AND SALINA—New York State Banking Company, Syracuse; Wilkinson & Co., Syracuse.

Montezuma—First National Bank, Auburn.

PALMYRA—First National Bank, Auburn.

ROCHESTER—Bank of Rochester, Rochester.

Brockport—First National Bank, Brockport.

Albion-Orleans County National Bank, Albion.

MEDINA-Union Bank, Medina.

LOCKPORT—Niagara County National Bank, Lockport; First National Bank, Lockport.

Tonawanda—Evans, Killmaster & Co., Tonawanda.

Buffalo, Bank of Buffalo, Buffalo; Bank of Commerce, Buffalo; Bank of Attica, Buffalo; Farmers and Mechanics' National Bank, Buffalo; German Bank of Buffalo; First National Bank of Buffalo; Manufacturers and Traders' Bank, Buffalo; Marine Bank, Buffalo; Third National Bank, Buffalo; White's Bank, Buffalo, each one-tenth.

WATERFORD-Saratoga County Bank, Waterford.

FORT EDWARD—State Bank, Fort Edward.

WHITEHALL—First National Bank, Whitehall; Old National Bank, Whitehall; Merchants' National Bank, Whitehall.

Oswego-Bank of Oswego, Oswego; City Bank, Oswego; First National Bank, Oswego; Lake Ontario National Bank, Oswego; National Marine Bank, Oswego; Second National Bank, Oswego.

GENEVA-First National Bank, Geneva.

WATKINS-Schuyler County Bank, Watkins.

BOONVILLE-First National Bank, Boonville.

CORNING-J. N. Hungerford; Q. W. Wellington & Co.

Mount Morris—Genesee River National Bank.

OLEAN-State Bank, Olean.

# CIRCULAR TO SUPERINTENDENTS OF CANAL REPAIRS.

CANAL DEPARTMENT, ALBANY, April, 1870.

To the Superintendents of Canal Repairs on the New York State Canals:

It has been usual hitherto to issue circular letters from this Department explanatory of your duties, in order that you may thereby, to a certain extent at least, be informed of what will be expected of you by this Department. In preparing the following instructions, I have, to a great extent, adopted those of my predecessors, varying them where it appeared necessary to conform to changes in the laws and duties of your office.

Section 1, chapter 57, of the Laws of 1851, expressly provides that "Superintendents appointed by the Canal Board on the several canals of this State shall give their *personal* and *constant* attention to the duties of their office."

It is not competent for you, therefore, to perform your duties by proxy, or to be engaged in any other business that requires your personal attention. It is an office that requires vigilance and activity. The interests committed to your care are great, and a little negligence on your part may be the cause of great damage. You will do great injustice, therefore, to the State, and yourself also, if you assume to enter upon the duties without a firm determination to give the State your prompt, energetic and undivided attention to the duties of your office.

It is made your duty as such superintendent, under the direction of the Canal Commissioners, and particularly of the Commissioner who has charge of the line of the canal on which you are employed, to keep in good repair the canal and the public works committed to your charge; and you are, under the advice and direction of the Commissioner, to make all necessary contracts in the manner hereinafter stated for that purpose, and faithfully to expend all such moneys as shall be placed in your hands by the Canal Commissioners and the Auditor. Sections 99, 100, 101, 102 and 103, on page 236, vol. 1, of the first edition of the Revised Statutes, contain an enumeration of some of the most important of your duties, and I therefore copy them at large:

"§ 99. Each superintendent of repairs, and every collector of tolls, before he shall enter on his official duties, shall execute and file in the office of the Auditor a bond, for the faithful execution of his trust, in such penalty and form as the Canal Board shall direct, and with such sureties as the Auditor shall approve.

"§ 100. It shall be the duty of each superintendent, under the direction of the Canal Commissioners, to keep in repair such sections of the canals, and works connected therewith, as shall be committed to his charge; to make all necessary contracts for that purpose, and faithfully to expend all such moneys as shall be placed in his hands by the Canal Commissioners or the Commissioners of the Canal Fund.

"§ 101. Each superintendent shall be under the direction of the Canal Commissioners, and especially of the acting Commissioner having charge of the line of the canal on which such superintendent is employed.

"§ 102. Each superintendent shall, as often as once in sixty days, render his account to the Auditor, who shall audit the same; and 'f any superintendent shall omit to render his account, or his account as rendered be not satisfactory, the Auditor shall notify the Canal Board and the Commissioners of the Canal Fund thereof, and no further advances of money shall be made to such superintendent, but he shall be immediately removed from office.

"§ 103. Before any superintendent's account for expenditures shall be presented to the Auditor, the Canal Commissioner having charge of that part of the canal on

which such superintendent is employed, shall certify, on such account, that he has examined the same; that the several disbursements, specified therein were made under his direction on the canal, or for repairs necessary to be made thereon; and that he believes such disbursements to be proper and reasonable, and to have been made as charged."

You are under the necessity, from time to time, of purchasing materials and employing hands for the repair of the canal; and as it is, and always has been, the policy of the State to pay as soon as the materials are furnished or the service rendered, provision has been made to place money at the disposal of the superintendent for this purpose. The seventh and eighth sections of "An act in relation to the canals," passed May 16, 1837, provides as follows:

- "§ 7. Before any advance of money shall be made to a superintendent of canal repairs, by the Auditor, he shall make out a detailed statement, in such form as the Auditor shall prescribe, of the several anticipated objects of expenditure on the line of canal under his charge.
- "§ 8. If the said estimate shall be filed in the office of the Auditor, with the certificate thereon of the Canal Commissioner, stating that in his opinion the whole amount, or if less than the whole amount, what portion of the said estimate should be advanced, the Auditor may make advances on the same, in such sums and as often as he may deem necessary; provided such advances shall not exceed the amount certified by the Commissioner."

This money is to be advanced to you on satisfactory evidence that it is required for the repair of the public works. And in order that the Auditor may have a reasonable foundation for an opinion that the advance asked for by the superintendent is "required in the execution of his duties," it is necessary that you should, previous to asking for such advance, carefully examine every part of your line of the canal, and make out a full and detailed statement of all the repairs required to be made, and the sums which, in your judgment, it will be necessary to expend upon them for the ensuing sixty days. In this estimate the location and character of the work, on which the expenditure is to be made, should be given with such minuteness and precision as to enable the Commissioner to trace every dollar of the public money to some portion of the public work.

- 1. If a bridge is to be repaired or rebuilt, the estimate should give the expense of removing the old and preparing for the new foundation, the quantity and cost of the stone and lime, the expense of the mason work, the quantity and cost of the timber, the planks, the board, the iron work, etc. If an aqueduct, a culvert, a lock or any other structure, requires to be repaired or rebuilt, its location should be given, and a minute estimate made of the kind, quantity and cost of the different materials necessary to be used. If there are materials on hand suitable for the contemplated work, the quantity and amount paid for the materials on hand should be stated, and deducted from the estimated cost of the structure.
- 2. The same particulars should be given in relation to each repair which has been commenced and remains unfinished.
  - 3. The tools, implements and apparatus to be purchased, and their probable cost.
- 4. The sum necessary to pay lock-tenders, according to the contracts with them for their wages, expense of lamps, etc.
- 5. The sum necessary to be paid, during the sixty days, to each contractor on your line.
- 6. If the tow-path is to be raised, or any work is to be performed which is not contracted for, the location and character of the work should be given, with setailed estimate of the expense of doing it.

The estimated expenditure upon each bridge, culvert, etc., should be shown separately, and the total sum required for the sixty days should be given in a general footing. The regulations prescribed for the estimate under the act of 1847 are as follows:

"That every superintendent of repairs on the canal, in order to obtain an advance of moneys to be expended on the canal, shall make out a detailed statement of the several objects of expenditure for the next sixty days, so far as he can anticipate the same, stating whether for building bridges, repairing aqueducts, graveling the towpath, the pay of lock-tenders, teams and laborers, the purchase of materials, tools and the like, and may add to the estimate a separate sum for contingencies, and shall deliver two copies of the said estimate to the Canal Commissioner. On one of the said copies the Commissioner shall certify what amount, in his opinion, ought to be advanced, which estimate and certificate shall be filed in the Canal Department, on receiving the balance; the other copy of the estimate shall be retained by the Commissioner, to be used on the settlement of the accounts of the superintendent, at the end of sixty days."

You are required to open an account as superintendent, and separate and distinct from your individual concerns, with some bank, in which the advances made to you by the Auditer of the Canal Department are to be deposited.

You will be furnished by the bank where you keep your account with a check and bank book, the latter of which you are required to have written up at least once a month. The check book you will of course confine to your account as superintendent; and by entering in it, upon the blank margin, opposite to the check, the sums advanced to you from time to time, you will be able at any moment to tell the amount you have in bank.

The payments which you are to make upon your line of canal may be classed under five general heads, viz. :

- 1st. Payments to lock-tenders, which are in each case for a price certain for a month, or for two months, and the total amount of which for those periods can almost always be known with precision.
- 2d. Payments to regular and permanent hands under foremen who keep check rolls, and the amount necessary to pay whom for a month can, by information from the foreman a few days before the close of each month, be told with almost as much accuracy as that of the lock-tenders.
  - 8d. Payments for materials for repairs, including payments on contract.
  - 4th. Payments for tools, etc., being mostly merchants' and smiths' bills.
  - 5th. Miscellaneous payments.

By a compliance with the requirements of this circular, you will always have it in your power to have to your credit, in the bank where you shall keep your account, funds sufficient for the necessary expenditures on your line of canal. And while provision is thus made for your public expenses, which will prevent the necessity of your ever having recourse to your individual credit to meet them, you will consider the funds so placed at your disposal as sacred to the uses of the canal, and that they are to be drawn from the bank no faster and in no larger sums than the necessity of payments absolutely requires. Thus, in relation to the payments of the 1st and 2d class, it is not conceived to be necessary that the moneys to make them monthly, which is as often as they will be made, need be drawn by you from the bank until near the expiration of the month in which the service shall be performed.

Payments of the third class, and their amount, cannot be anticipated with equal precision, but they can sufficiently so to render it unnecessary that you should have any considerable sum in your hands at once to meet them.

Payments of the fourth class are generally delayed by the superintendent until the close of the sixty days. Those with whom you deal to any extent, and with whom you have a running account, if they are certain of receiving their pay at the end of sixty days, would willingly delay presenting their bills until that time. Thus, payments of this class will not, generally speaking, have to be made until the close of the two months.

For payments of the fifth class, as they cannot be foreseen, and for such of those under the other heads as are of the same character, you will, of course, have to be provided with funds in your hands to the necessary amount.

The canal moneys being on interest in the deposit banks, it is expected that a superintendent will not make his drafts any oftener, nor in larger amounts, than a just regard to the public wants shall render necessary.

It is supposed, as a general rule, that not more than one-fourth of a certified advance will be wanted by a superintendent before the middle of the first month, one-fourth part at the close of the month, one-fourth part by the middle of the second month, and the residue at the close of that month. By this manner of drawing for the advance, a superintendent never need be subjected to any delay in making his payments, if his estimate be duly filed in this Department, as his deposit bank will always be willing to take his drafts on the Auditor.

The proportions of the advance, and the periods when to be drawn for, may be varied by circumstances; and should it be necessary to draw for a much larger proportion of the advance, at any one time, than as above specified, a letter containing the reasons therefor should be written in time to be received here previous to the presentation of the draft for payment.

By a resolution of the Canal Board, no superintendent of repairs is allowed to keep his official account at a bank which shall advance to him moneys beyond the amount for which the bank shall have advice from the Auditor that the superintendent's drafts on the Auditor will be paid.

To enable superintendents to comply with all the requirements of this circular, the Canal Board have authorized the Commissioner to allow superintendents in charge of sections not in the hands of repair contractors, such an amount of clerk hire as in his opinion shall be necessary.

This will enable you to keep the necessary accounts, and to make the prescribed estimates, reports and contracts, and the necessary copies thereof.

By keeping a separate account with every contract, with every lock-tender, and with every separate job of work, such as a bridge, a lock, a culvert, an aqueduct, in which each structure shall be charged with the quantity and cost of the stone, lime, timber, etc., excavation, embankment, mason work, carpenter work, iron, etc., etc., and also by keeping the check book or cash account, the bank book, etc., as required in the preceding part of this circular, you will be enabled at any time during the second month, by a careful examination of all these accounts, and of all the work which is going on under your supervision, to form an accurate estimate of the sum required to close up your accounts at the end of the sixty days. This examination should be made several days before the close of the second month, and in time, if it becomes necessary, to write to and get an answer from the Auditor, previous to the close of two months.

If you ascertain that you have money enough to pay all claims against you as the agent of the State, up to the time at which you are required to render your accounts, it will not be necessary for you to pursue the course hereinafter prescribed; but if, on examination, you find that the money to pay off the claims at the end of the tixty days will fall short, you should make an additional estimate and satisfy the

Commissioner of the situation of your accounts and money, and obtain from him the usual certificate for a further advance, to enable you to close up your accounts. When you ask this certificate of the Commissioner, you should exhibit to him your bank account and your expenditures, and such estimate as will enable the Commissioner to judge of the necessity of the advance.

You are not to pay out the public money without taking a receipt, dated at the time of payment; you are not, under any pretense whatever, to take a receipt without paying the money to the full amount of the receipt taken. You are not in any case to give notes or due bills to any person who has furnished materials or rendered service to the State.

A mode of transacting business, which will only be practiced by those who wish to speculate on the public money, instead of paying it to those who have earned it, must eventally result either in a fraud upon the treasury, or upon the individual who signs the receipt. To prevent either of these results, each superintendent is required to make oath that the money has actually been paid for every receipt which he asks to have credited to his account.

In the Laws of 1851, chapter 57, section 2, it is enacted that "No superintendent appointed as aforesaid shall, under any pretense whatever, take a receipt for labor done, services performed or materials furnished for the canals, when the money shall not be actually paid."

And in the first section of chapter 310 of the Laws of 1842, it is expressly required that "proof in some apt form shall be furnished on oath that it (the voucher) was so filled up at the time it was taken, and that the money, mentioned therein to have been paid, was in fact paid in cash, or by draft on some specified bank."

Every voucher taken by a disbursing officer should contain a brief and true history of the transaction between the agent of the State and the individual who signs the voucher; if it is for labor, the account should give the number of days and the date of commmencing and ending; the price per day or month; and, if the voucher covers the services of any person who does not sign the receipt, the account should give such explanation as to show that the person signing the receipt had a legal right to receive and receipt for the money. For instance, if a man is employed with his son, who is a minor, or with an apprentice, the fact should be stated, and the sum for the pay of the minor or apprentice carried out in a separate line, with the price per day or month. But, in all other cases, the money should be paid to and receipted by the person who does the labor; and in no case should one man be allowed to hire hands to labor for the State, and receive the pay for such labor. All laborers should be employed by the superintendent, and the money paid to the person thus employed, or to his written order, and not to any other person.

If a disbursing officer adhere strictly to the rule of embodying in each receipt the simple truth in relation to the transaction between the State and the person signing it, he cannot be embarrassed in the settlement of his accounts. Justifiable deviations from prescribed forms may be explained or excused; but deviations from fact in a voucher destroys its validity, and an explanation, by disclosing the real facts of the case, instead of excusing the officer, tends to cast suspicion either upon his integrity or his capacity. The practice of allowing a person hired by the month to receipt for a team driven by him, but which belongs to another person, is wrong, although the interests of the State may not be affected, for the simple reason that the voucher does not give a true relation of the transaction. Such a voucher, however, may be rendered valid by a writing from the owner of the team, authorizing the driver to receipt for the use of it.

To every voucher of merchants, mechanics and miscellaneous accounts, in which

are included articles purchased or services rendered, not paid for on delivery of articles or at time of rendition of service (and which is intended especially to include running accounts of every description), all accounts for labor not included in check rolls, all bills left unpaid by your predecessor, which you may be authorized or directed to pay, must be verified, before payment, before yourself or some officer authorized to administer oaths, which affidavit must be attached to the voucher and returned therewith to this Department. The following form of affidavit has been prepared for such purpose. As it is desirable that at the expiration of each sixty days the Department should be furnished with the full amount of expenditures during such period, there will be required in cases of all vouchers, including any item or charge accruing at a date anterior to the last abstract of expenditure, to be added to the affidavit a statement or explanation of the reasons why the same was not previously presented or paid:

STATE OF NEW YORK, } se. :

A. B. (or if a firm, say A. B., one of the firm of C. D. & Co., named in the annexed , in the county of , being duly sworn, saith that all the items in the annexed account are correct, and accrued at the dates respectively as stated therein; that no part of the same or any item therein is charged at more than its fair value; that it is a just claim against the State of New York to the amount of cents, specified therein; that no part thereof hath been included in any former bill rendered against the State; that there are no legal or equitable offsets against the same; that the same, or any part thereof, hath not been paid to this deponent or any other person, by or in behalf of said State, to the knowledge, information or belief of this deponent; that this deponent is (or if a firm, say that the said firm are) the lawful owner of such account, and entitled to the payment thereof. And, further, that all the labor charged therein has been applied upon the works and to the benefit of the State; and that all the property charged therein has been delivered to the duly authorized agents of the State, and, according to the best of the knowledge, information and belief of this deponent, used for the benefit of the State, by or under the direction of one of the authorized agents thereof.

### FOREMEN AND ROLLS.

Industrious and faithful men ought to be employed as foremen, on whose fidelity reliance can be placed to keep the roll with such accuracy as to do justice to the individual as well as to the State. The roll should be made up at the end of every month, and the number of days for which each person has labored should be carried out opposite his name, with the price per day or month, and the total sum due him; and the roll, thus made out, should be read in the hearing of each laborer, or at least the foreman should state to each laborer the number of days, the price and the total sum entered on the roll opposite his name. When the roll is thus made out, and the sums footed up, the truth of it is to be verified by the oath of the foreman, in the following form:

STATE OF NEW YORK, , } ss. :

of , a foreman under , superintendent, being duly sworn, saith that the foregoing check roll, the total number of days' labor entered on which is , was kept by him as foreman of the laborer and teams entered thereon; and that he has himself (and has good reason to believe that the

several other persons and the teams entered upon said roll have) performed the labor in the service of the State for the whole number of days and parts of days stated in said roll, and at the prices entered opposite each name and team respectively; and that the description of each work, and the number of days on each work, as entered on said check roll, is in all respects just and true, according to the best of his knowledge and belief.

A. B., Foreman.

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Subscribed and sworn to, this day of 187, before me, C. D., Superintendent of Canal Repairs.
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If the labor has not in all cases been performed under the inspection of the foreman, so as to enable him to swear positively that it has been done, he can make such exceptions as the case requires.

It is desirable that the oath be administered in all cases by the superintendent. If the superintendent is not present, the roll may be sworn to before any judge, justice or commissioner.

The roll being thus verified, you should yourself pay to each individual the sum due him according to the roll, and take his receipt therefor, which should be dated on the day of the transaction.

The receipts should be numbered, commencing with the first name on the roll for No. 1, and numbering them in the order in which the names stand on the roll. These receipts, without being folded, should be arranged according to their numbers, and carefully folded in the check roll, which should be filed on the outside of the roll, with the name of the foreman, the month embraced in the roll, and the total amount paid on it.

This roll, covering the receipts of all the laborers under one foreman for a month, will occupy only one line, or the space of a single voucher, on the abstract of the superintindent, and will be numbered on the outside, with reference to the other vouchers entered upon the general abstract. The entries upon the check roll should be confined exclusively to the labor of the hands employed by the State, and the service of teams where they are furnished. The foreman and hands employed by the month are not allowed to furnish materials, and therefore the roll will be confined to their labor; and, if the same individual who is temporarily employed with his team, has also an account for materials furnished, the receipt for materials should be entered separately on the abstract of the superintendent.

Your accounts being prepared as above directed, and having made yourself sure that you have made all the payments and procured all the vouchers for the two months, you are to enter at the bottom of the abstract the one-sixth part of your salary, which you are to retain at the closing of each account. In this shape you are to lay the accounts before the Canal Commissioner upon your line, and his signature to the certificate, required from him, must be obtained before the accounts can be allowed, or even examined at this office. This should be done as soon after the close of each two months as is possible; and that you may be prepared to lay the accounts before the Commissioner, without delay to him, you should have the vouchers taken, and in order, and the abstract completed immediately after the expiration of the last month.

When all the vouchers and the amount of your salary for two months have been entered upon the abstract, and the general statement of your account is made, according to the form on the abstract annexed, the whole is to be verified by your oath, in the following form:

13

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STATE OF NEW YORK, COUNTY OF , ,18 .}
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, superintendent of canal repairs, having charge of the line of canal specified in the above abstract, doth solemnly swear that the foregoing is a true abstract of all the vouchers taken by him as such superintendent for the days ending on the day of , 187; and doth further swear that the money specified in the several receipts, of which the above is an abstract (except vouchers marked A, paid by agent), has been actually paid, as specified in said receipts, in cash or by check on the bank; and, further, that all the receipts, not specially excepted, were each and every of them filled up as they now appear before they were signed; and he doth further swear that, according to the best of his knowledge and belief, all the labor has been performed, services rendered and materials furnished for the benefit of the State, and the State alone, and at as fair and reasonable prices as the same could be procured; and further swears that all fines, penalties and forfeitures collected, and the sales of public property made during the period aforesaid on the line of canal under his charge, are, according to the best of his knowledge and belief, correctly entered on the said abstract.

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Subscribed and sworn to before me this day of ,18 . Commissioner.
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[In the absence of the Commissioner, the oath may be taken before any judge, justice or Commissioner.]

If, from sickness, or any other cause, you are unable to go through your line and make the payments yourself, as you ought to do when you are able, you must then make such exceptions in the oath as the case requires, making a note on the back of each receipt, stating by whom the money was paid, and furnish an affidavit, to supply the deficiency, from the agent whom you shall have employed to go through the line for you and make the payments. Those who keep the rolls should not be furnished with money to pay the hands on their rolls. There have been abuses under this practice which make it necessary to discontinue it, except in special cases; and then an explanation of the circumstances should be given to justify a deviation from the rule.

### REPORT AT THE END OF SIXTY DAYS.

At the close of the sixty days, in addition to the rolls of your foreman, and the receipts and abstract, you should prepare a full report, in the same order in which the estimate was made, showing the expenditure upon each structure, repair or job, and the separate cost of the labor and the different kinds of materials used, and the cost of all the materials furnished and work done on the line for the sixty days. If the cost of any culvert, bridge or other expenditure differs materially from the original estimate, the cause of such difference should be explained. Such report of expenditure should include all your expenditures during such sixty days; and no bills or accounts should be left unpaid to be included in any subsequent report.

### PURCHASES, BY WHOM MADE.

There has been a practice tolerated by some of the superintendents of allowing foremen, lock-tenders and others to make purchases on the credit of the State. All purchases should be made by the superintendent personally, or on his vertices order, and not otherwise. The superintendent is furnished with money to pay for everything which is required for the repair of the canals, and as soon as any work

for the State is done, it should be promptly paid for; and, at all events, the persons employed by the superintendents should not, in any case, be allowed to purchase articles for the canal on the credit of the State.

### APPOINTMENTS OF SUBORDINATES.

Chapter 57 of the Laws of 1851, section 3, confers upon you the power to appoint subordinates, and I therefore insert herein such section at large:

"Each superintendent so appointed shall have power to appoint his own foreman, lock-tenders and other subordinate persons necessary to enable him to discharge his official duties, and the compensation to each shall not exceed the rate of compensation established by the Board of Canal Commissioners; but the Canal Commissioner in charge of any section of the canal in which any foreman, locktender or other subordinate person may be employed, or the Board of Canal Commissioners, shall have absolute power to remove any foreman, lock-tender or other subordinate for misconduct, incompetency or neglect of duty, provided such Canal Commissioner or the Board of Canal Commissioners making such removal shall specify the cause of such removal in writing and file the same in the office of the Auditor of the Canal Department within ten days from the date of such removal. In case of the removal of any such foreman, lock-tender or other subordinate, it shall be the duty of the Commissioner or the Board of Canal Commissioners making such removal immediately to notify the superintendent in charge of the section of the canal where such removal shall be made of the fact of such removal; and in case the superintendent shall neglect or refuse, for three days, to fill the vacancy thus created, and to notify the Commissioner or Board of Canal Commissioners thereof, it shall be the duty of the Canal Commissioner or .he Board of Canal Commissioners making such removal to fill such vacancy."

### LOCK-TENDERS.

In the employment of lock-tenders, you should employ such men only as will give their personal attention to the business, and under no pretense should a contract for tending locks be made with a person who intends to sub-let or farm it out; and if any person, after his appointment as a lock-tender does not give it his personal attention, or sub-lets or farms it out in any manner, you are required forthwith to remove him, and appoint another who will properly attend to his duties.

The lock-tender has the power of determining as to the preference between boats in passing a lock; and he ought not only to be in attendance himself, but he should be a sober, honest and discreet man, who can be relied upon to decide these questions promptly and impartially.

Lock-tenders are prohibited by a resolution of the Canal Board from being concerned in any grocery on or near the canal. You are particularly required to see that this resolution is strictly complied with.

It is alleged that some of the lock-tenders on the canal have been in the habit of receiving presents of wood, etc., from boatmen; and it is inferred that those who receive such favors repay them by giving to such persons an undue preference at the lock. The lock-tender should in no case place himself in a position which will expose him to the suspicion, on the part of a boatman against whom he may decide, that his position is influenced by any benefits conferred by the person in whose favor he may decide. The practice alluded to is as objectionable as it would be for a magistrate, on the trial of a suit between two neighbors, to receive a present from either of the parties; a right decision, under such circumstances, would not protect

the magistrate from the suspicion that his mind was biased by the favor conferred; at least this would be the opinion of the defeated party, under a feeling that his cause was a just one.

Every suit commenced by a lock-tender should be immediately reported to the superintendent; and all fines collected should be accounted for at the close of each month, and the particulars of each case should be entered in the books of the superintendent, and the moneys received should be accounted for in his first settlement after the transaction.

If any suit is to be carried to a higher court, the particulars of the case should be reported to the Auditor in the same manner as is required in relation to suits commenced by the superintendent himself.

As soon as the lock-tenders are appointed on your line, you are requested to send a list of their names to the Auditor, the number of the lock or locks in charge of each, the pay per month or the amount of the contract with each person. This will enable the Auditor to estimate how much you require per month for lock-tending, and when you require it, as payment can only be necessary monthly.

### CONTRACTS.

All contracts for materials or jobs made by you should be in writing, and duly executed by the parties, and an account opened in each case on the books of the superintendent; no contract should be made or important improvement undertaken by you without the express approval and ratification of the Commissioner, and such approval or ratification of a contract should be signified by a certificate or indorsement on the contract. As soon as the contract is executed, notice should be given to the Auditor, stating the substance of the contract, the name of the contractor, and such particulars as will enable the Auditor to form an estimate of the amount of money required to complete the payments on the contract; the contract itself should be sent to the Auditor, with the voucher for the first payment under it. If other payments are to be made on the same contract, the superintendent can retain a copy of it for his use. The return alluded to will aid the Auditor in determining, when an advance is asked for, whether it is required to meet engagements made on behalf of the State.

You are prohibited by a resolution of the Canal Board from participating in any contract on the canals. This prohibition extends to all materials, tools or implements for the use of the canals, or any transaction by which you shall, directly or indirectly, be benefited by any of the money disbursed by you as superintendent. You cannot properly allow any contractor to take timber or materials from your land and receive a compensation therefor; and you should not do indirectly, through any relatives or friends, what you are not allowed to do directly by the law, the regulations and your instructions.

So far as you have it in your power, you should extend the same prohibition to your foremen, lock-tenders, and all other persons employed by you on the State work. You should make no contracts with those who are employed in the service of the State, by the month, or any fixed period, for the supply of materials in repairing the canal. Any bargain of this kind, on the part of a lock-tender or a foreman, is entirely inconsistent with his previous contract, to give the State his whole service as such foreman, lock-tender or laborer.

The fact has been disclosed, on the trial of one superintendent, that persons who were paid almost constantly for serving the State, were at the same time used as the instruments in buying off bidders for a contract, and getting possession of a job under a higher bid; thus depredating upon the State instead of serving it faithfully

as they were bound to do, while they were retained from month to month, if no from year to year, in its service.

All contracts for repairs or improvements, directed by the Legislature or the Canal Board, must be made in writing, and public notice must be given that sealed proposals will be received for entering into such contracts. The ordinary repairs of a canal may be made without a special contract. But in all cases where the execution of a job, not directed by the Legislature or the Canal Board, can as conveniently be done by contract as those improvements which are thus directed, the State should have the benefit of the competition provided for in the law.

It is considered that all work which is susceptible of measurement should be done by written contracts at specified prices. Sufficient public notice should be given for sealed proposals for all contracts, and in such manner as the Commissioner may from time to time direct.

### ANNUAL REPORT OF PROPERTY IN CHARGE OF SUPERINTENDENTS.

You are required to make an annual report, giving a schedule of all the property belonging to the State on the line of canal under your charge. This will require you to keep a memorandum of every article purchased for the use of the State, and of all tools or implements which are worn out, broken or lost, in order that you may, on the first day of January, in each year, render a satisfactory account of the property on hand, compared with the previous schedule, and the purchases between the periods of making the two reports.

### OLD MATERIALS, HOW DISPOSED OF AND ACCOUNTED FOR.

Whenever aqueducts or other structures are repaired, the utmost caution and strictness should be observed in relation to the old materials. These materials, of every description, if not necessary to be preserved for the use of the State, should be sold to the highest bidder, after giving reasonable public notice of the sale. The proceeds of such sale should be reported and accounted for at the close of the sixty days in which the sale is made. And you should, in thus reporting it, specify the time and place when such sale was made, and the notice that was given thereof. The superintendent should not himself be interested in any purchases of public property sold on the line of the canal.

Whenever paddle-gates, or any of the iron work connected with the locks, are replaced, the lock-tender should be held responsible for the safe keeping of the old article, which, if it cannot be repaired and used, should be disposed of by the superintendent for the benefit of the State, and accounted for by him.

### SUITS FOR PENALTIES, ETC.

The superintendents, in a great variety of cases, are authorized to sue, in the name of the people, for penalties for violations of the canal law and the regulations of the Canal Board. Where the superintendent is sued, or commences a suit before a justice, if the suit is to be carried to a higher court by either party, a full statement of the case should be made and sent to the Auditor, in order that the advice of the Attorney-General may be obtained before a heavy bill of costs has been made for the State to pay. Claims for costs, unless a sum sufficient for the purpose is recovered, cannot be paid until they are examined and allowed by the Commissioners of the Canal Fund, as required by law.

### BREACHES.

Whenever there is a breach in the canal, you should immediately give notice of it to the Auditor as well as the Commissioner. If money will be required to enable you to pay off the hands employed on the breach, you should state the facts in your notice to the Auditor. As soon as the breach is repaired, the Auditor should be informed of it, and of the expense incurred. This is desirable, as well on account of having authentic information in relation to the condition of the navigation as on account of the expenditure for the repair.

Timely examinations of the structures connected with the public works, and unre mitting vigilance on the part of the superintendent and those employed under him, may, in almost every case, prevent breaches. Where they take place, and a heavy expense is incurred by the State, and the trade of the canals is interrupted, it is important that the superintendent and those under him should be enabled to show that the occurrence is not attributable to any neglect on their part.

Last season was one peculiarly unfortunate in regard to breaches, and it is believed that the most part, if not all of them, could have been avoided by proper care and attention on the part of the superintendents and their subordinates. With proper watching and regulation of the levels, breaches in the canal seldom, if ever, need occur; and you will be expected to use every means within your power to protect against them. The Canal Board, believing that they are generally more the result of negligence than unavoidable accident, have directed me to notify you that they will hold each superintendent to a rigid accountability for any breaches that may occur upon his section; and will act upon the principle that a superintendent who cannot, except under very extraordinary circumstances, protect the canal from breaches, is incompetent for the charge.

### PUBLICATION OF MONTHLY ABSTRACT.

The law passed in March, 1853, being chapter 52 of the Laws of that year, which requires you to publish monthly abstracts of your disbursements, provides that "the expense of such publication shall not exceed the sum of fifteen dollars, to be regulated and fixed by the Auditor of the Canal Department." Taking the experience of former publications, I have concluded to fix the rate of compensation, applicable to all papers, at seventy-five cents for each sixteen lines of an ordinary newspaper column, which, for the Evening Journal and Argus, of this city, is called a square. Experience thus far shows that, at that rate of compensation, the expense of three-fourths of the publications would not average more than about nine dollars per month, while the average of the largest would scarcely exceed fifteen dollars per month.

It must, of course, be understood that you cannot pay more than fifteen dollars for a single month. If, at the rate fixed, it would amount to more than fifteen dollars, and no paper will publish it, then you are to file it as directed by the law.

Almost all the papers follow the form prescribed, and confine the publication to the width of a column. A few occupy the width of two columns. In such cases the pay will be for only one-half the space occupied, and at the rate mentioned.

### NOT TO RETAIN MONEY BELONGING TO WORKMEN.

You should not retain in your hands the money belonging to the workmen, or any of them, although they may request you to do it for their use and benefit. If any of them desire to deposit their money with you for safe keeping, you should decline receiving it; being the agent of the State, you cannot accept these trusts from those who work for the State without creating in their minds the belief that

in this transaction, also, you are, in some degree, acting in your official capacity, and that the State ought to be responsible for your acts.

You have a high responsibility cast upon you, and the interests of the State, as well as the interests of those who navigate the canals, are to be affected, favorably or unfavorably, by the manner in which you discharge your duties. You cannot do justice to the public, or to your own character, without being constantly on the line of the canal and devoting your whole energies to the public service.

Money is placed in your hands, to an immense amount, with the confident reliance that you will faithfully expend it in paying those who have furnished materials for the canal or rendered service to the State. Beyond the amount of your own salary, which you are allowed to receive every two months, you should not permit yourself to use a dollar of the public money for private purposes, under any pretense whatever

### CLERKS, ETC.

Such superintendents as are allowed clerks will appoint such clerks subject to removal by the Canal Commissioner, who will also determine the amount to be paid them for their services.

You will receive from your predecessor, the late superintendent of repairs, all books, blanks, papers and other property belonging to the State, which he may have in possession, rendering a receipt therefor, and send a copy of such receipt to this office

#### PATROLMEN.

Act cnapter 55 of the Laws of 1870 authorizes the Canal Board to appoint as many patrolmen as it may deem necessary to act as a police along the canal, and enforce the canal laws and regulations. Section six of said act further provides that "such patrolmen shall be assigned to such portions of the canals as the Commissioner shall direct, and shall be subject to and under the control of said Commissioner, and the officer in charge of the repairs of such portion of the canal."

The regulations in regard to patrolmen, adopted by the Canal Board June 16, 1870, provide, among other things, that "it shall be the duty of such patrolmen to pass over that portion of the canal assigned them daily, and oftener, if necessary, to see that the levels are kept at a proper and uniform height; that water is not unneces sarily wasted, or wrongfully taken from the canal; that timely warning is given to the repair agents of leaks or other dangers to the canal; that the locks are well and properly attended; that boats are not overloaded; that boatmen keep their boats moving, and in such shape at all times as not to in any way or manner obstruct the flow of water or navigation."

You are, therefore, required to exercise such supervision and "control" over the patrolmen that have been or may be regularly appointed and stationed upon your section of the canal, as will secure from them the faithful performance of their duty, and enable you to render to the Commissioner in charge a truthful account of the number of days each patrolman has served the State during the preceding month.

You will carefully preserve all circulars, pamphlets and printed directions which you may, from time to time, receive from this office, and carefully place the same in file.

Yours, respectfully,

JAMES A. BELL,

Auditor.

(FORM.)

AN ABSTRACT of expenditures by A. B., superintendent of repairs upon the canal, and having charge of miles of said cand, extending from for the sixty days commencing on the 1st of April and ending on the 31st of May, 1870.

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# FORM—(Continued).

Balance from last abstract due the State (or due me, as the case Deposited since that abstract my drafts on the Auditor of the Department to my credit in the	may be)	\$40	00
Department to my credit in the	ank	2,920	00
Expended as per abstract	•••••	\$2,960 2,624	98
Balance	• • • • • • •	\$335	07
Of this balance there is in bank	\$300 00 35 0	7	
Total in bank and in hand, equal to balance above	\$335 O	- ? =	
A. B., Superintendent	of Cana	- l Ropaire	L

A. B., Superintendent of Canal Ri

Dated this 2d day of June, 1870.

STATE OF NEW YORK, } ...

, superintendent of canal repairs, having charge of the line of canal specified in the above abstract, doth solemnly swear that the foregoing is a true abstract of all the vouchers, taken by him as such superintendent, for the days ending on the day of , 187; and doth further swear that the money specified in the several receipts, of which the above is an abstract (except those marked "A" on the back as having been paid by agents), has been actually paid as specified in said receipts, in cash or by check on the bank; and, further, that all the receipts, not specially excepted, were each and every of them filled up as they now appear before they were signed; and he doth further swear that, according to the best of his knowledge and belief. all the labor has been performed, services rendered and materials furnished for the benefit of the State, and the State alone, and at as fair and reasonable prices as the same could be procured; and further swears that all fines, penalties and forfeitures collected, and the sales of public property made during the period aforesaid, on the line of canal under his charge, are, according to the best of his knowledge and belief, correctly entered on the said abstract.

A. B., Superintendent.

Subscribed and sworn to before me this } day of , 187 . C. D., Canal Commissioner.

[In the absence of the Canal Commissioner, the oath may be taken before any judge or commissioner.]

I certify that I have examined the preceding abstract, and the vouchers of which it is an abstract, amounting to dollars and cents; that the several disbursements specified therein, were made under my direction on the canal or for repairs necessary to be made thereon, and that I believe such disbursements were proper and reasonable, and have been made as charged in the said abstract and vouchers.

(Signed.) C. D., Canal Commissioner upon that part of the canal described in the heading of the above abstract.

Dated 6th day of June, 1870.

### NOTES.

Vouchers and check rolls should be entered invariably in the order of the dates. Both sides of their sheet are to be written upon. No. 7 is to be equal to the footings of all the columns from No. 2 to No. 6, inclusive.

Should a voucher contain articles or matter that would come under two or more of the above heads, put the true amount under each head, and the total in the total column.

The column before the one headed "lock tenders" is intended for the entry of lock tending and check rolls for a month, to get at the footing of each for that period, to be carried under the appropriate heads.

The above "form" is intended to show the superintendents how they are to fill up their abstracts to be sent to the Canal Department. It is expected that this "form" will be always used by every superintendent as a guide in making up their abstracts.

STATE	, CANAL DEPARTMENT, , 187.	}
<b>7</b> 5		

SEE.—At a meeting of the Canal Board, held , 197, you were appointed a patrolman, under act, chapter 55 of the Laws of 1870, to be assigned to duty on such portion of the canals as the Commissioner in charge of the Division may direct, at a salary of dollars per month.

Within ten days after the receipt of this notice, you are required to take and subscribe the official oath required by the Constitution of this State, file the same in the office of the clerk of the county in which you reside, and transmit a certified copy thereof to this Department.

On the opposite side of this sheet you will find a certified copy of the regulations adopted by the Canal Board, June 16, 1870, in regard to the duties of patrolmen. I will also send you a certified copy of the canal laws and regulations.

Yours, etc., Auditor

### REGULATIONS IN REGARD TO PATROLMEN.

The Commissioner in charge shall assign to each of the patrolmen appointed by the Canal Board such beat or portion of the canal on his division as he shall deem expedient. Such patrolman shall take the oath of office prescribed by the Constitution of the State, within ten days after notice of appointment, and file the same in the office of the county clerk of the county in which he shall reside, and also in the office of the Auditor at Albany.

It shall be the duty of such patrolmen to pass over that portion of the canal assigned them daily, and oftener if necessary, to see that the levels are kept at a proper and uniform height; that water is not unnecessarily wasted or wrongfully taken from the canal; that timely warning is given to the repair agents of teaks or other dangers to the canal; that the locks are well and properly attended, that boats are not overloaded; that boatmen keep their boats moving, and in such shape at all times as not to in any way or manner obstruct the flow of water or navigation.

Every master or person in charge of a boat or float shall obey the orders of the patrolmen as to taking off a part of their cargo, if overloaded; as to keeping their boats or floats in such shape, at all times, as not to obstruct navigation or the flow of

water, and shall move their boats or floats, or moor them, as he shall direct, in order to facilitate navigation and promote the best interest of the State and navigator; but for any willful neglect of these things, or disobedience of the orders of patrolmen with reference thereto, such master or person in charge of a boat or float shall be liable to a fine of from five to ten dollars for each offense, dependent upon the nature of the same, which fine may be laid and collected by such patrolman, and the boat or float detained until such fine be paid. All fines so collected to be paid to the State.

Each patrolman, by virtue of act, chapter 55, of the Laws of 1870, has police powers and authority to arrest and detain offenders for any violation of the rules and regulations of the Canal Board, made and adopted pursuant to law, until the persons or parties so offending shall satisfy the demands of the same.

### STATE OF NEW YORK, CANAL DEPARTMENT.

I certify, that I have compared the foregoing regulations with the original regulations, adopted by the Canal Board on the 16th day of June, 1870, and that the same is a true copy thereof, and of the whole of said original regulations.

In witness whereof I this 16th day of Ju		•	d affixed my off	icial seal,
•	• • • • • • •	•••••		1uditor.
	•••••			1870.
I hereby certify that	, a pai	rolman, stationed	at ,	, on
section of	canal, has fa	ithfully performed	the duties pres	scribed by
the regulations in regard to	•			
and rendered such other			-	. nun and
that he is justly entitled to 1870.	pay for	days' service in	the month of	•
		• • • • • • • • • • • • • • • • • • • •	Superintende	ent,
	•	Section	of	canal.

STATEMENT of the number of locks, their lift in feet, total lockage of each canal, etc., etc., of all the canals in the State of New York.

NAME OF CANAL	Length in miles.	Lockage in feet.	
Rrie canal Navigable feeders of same Champlain canal Pond above Troy dam Glen's Falls feeder and pond Black River canal Black River feeder. Black River feeder. Black River improvement. Oneida Lake canal Oneida River improvement Seneca River improvement Seneca River towing-path Baldwinsville canal Cayuga and Seneca canal Crooked Lake canal Chemang canal and feeder Cayuga inlet Chenango canal Genesee Valley canal and feeder Dansville branch of same	66.00 13.00 13.00 13.00 85.33 13.47 42.50 6.00 88.00 88.00 5.00 1.00 22.77 8.00 92.00 92.00 97.00	654 89 179.68 138.00 1,089.25 62.00 154.85 77.85 8.00 76.61 277.85 504.88 1,015.28 1,045.29	
Total	889.70	5, 268.79	

		SIEE OF CANAL.			NUMBER AND SIZE OF LOCKS.			boats.	Thoats.
NAME OF CANAL		Width on surface.	Width on bottom.	Depth of water.	Number of locks.	Length between quoins.	Width in clear.	Average burthen of	Maximum burthen of boat
Erie canal  Enlargement of same Oswego canal  Cayuga and Seneca canal  Enlargement of same Cayuga and Seneca canal  Enlargement of same Champlain canal  Glen's Falls feeder  Pond above Troy dam  Black River canal and feeder  Black River timprovement  Genesee Valley canal  Chenango canal  Chenung canal and feeder  Oneida River improvement  Oneida Lake canal  Baldwinsville and Seneca towing-path  Crooked Lake canal	38 38 21 23 66 12 3 50 42 124 97	40 70 40 70 40 70 50 50 50 42 40 42 80 70 40 42	28 56 24 56 24 56 25 35 26 26 60 56 24 26 60 56	474755	88 72 18 18 10 11 20 12 1 109 11 119 116 58 2 7	90 110 90 110 90 110 110 110 100 110 90 90 120 120 120 90 90	15 18 16 18 16 18 18 15 15 15 15 15 15 15 15 15 15 15 15 15	70 210 70 210 70 210 85 80 70 70 71 85 70 220 70	76 240 78 240 76 240 120 85 76 76 76 90 76 220 76

# ERIE CANAL.

# Total cost of construction, \$51,609,200.

REMARKS.	Old canal (not now in existence).	Enlargement.
Construction authorized Construction commenced Construction completed. Estimated cost at engineer's prices. Actual cost of construction Total feet of lockage Length from Albany to Buffalo. Number locks and size of chambers, Size of prism. Maximum dimension of boats Burthen of boats.	\$4, 926, 738 \$7, 143, 759 675½ feet 363 miles 88 locks, 90 x 115 40 and 28 x 4	654 80-100 feet. 850% miles. 72 locks, 110 x 18. 70 and 56 x 7.

### LOCKS.

No. of tock,	Double or single.	Lift.	No. of lock.	Double or single.	Lift.	No. of lock.	Double or single.	Lift.
1	Double	1514	25	Double	8	49	Double	6
2	Double	934	26	"	8	50		6 11-12
8	Double	1114	27		8	51	H .	5%
4		111	28	44	8	52		11
	44	10	90	44	7	59	Double	6
8		10 10	29 30		1036	58 54		736
2 1		10	81			54		
5 6 7 8	30.000	10	81	** ******	6	00		6
9	274144	10	82 83 84		8	55 56 57 58		10
		10	83			57		8
10	1	10	34	*****	8	58	"	8
11	******	10	35	"	8	59		
12		10	36	44	10	60	46	10
13		10	35 36 37	**	10	59 60 61	Double	9
14	4	10	88 89	**	9%	62	Double	9
15		10	39	44	10%	62 63 64 65 66 67 99 ulq		9
16	4	10	40		8	B4		10
7	******	10	41	4		6K		10
		1014	42		8	00		9
5 1	*****	1016	92		0	00	*******	
1		836	43 44		8	68 69 70 71 Compined		
20	******	10	44		10%	68 E	2	
21	*	1136	45	4	1036	69 2	Double	55 10-12
22	**	1136	46	ч	3	70 E	January and St. Jan.	
23 24	** *****	8	47	"	10%	71 8		
24		. 8	48	4	1036	2 Gd. Blk.	72	
	755.00			121111	/-	Rk.& Buf.	Double	9

### LOCATION OF LOCKS.

COUNTIES.	Nos. of locks.	COUNTIES.	Nos. of locks.
Albany Saratoga Schenectady Montgomery Herkimer. Oneida Madison	19 and 20. 21 to 25, inclusive. 26 to 34, inclusive. 35 to 45, inclusive.	Onondaga. Cayuga. Wayne Ontario Monroe Orleans Niagara	52. 58 to 60, inclusive 61 to 66, inclusive.

### ANNUAL REPORT OF THE

### CHAMPLAIN CANAL AND GLEN'S FALLS FEEDER.

Construction authorized. Glen's Falls feeder authorized. Retimated cost of canal at engineer's prices Navigation opened from Fort Edward to Lake Champiain. Canal completed from Waterford to Lake Champiain. Canal, cost of construction up to 1832. Feeder. cost of construction up to 1837.	April, 1899. 8871, 000. November 24, 1819. 1822. 8991, 011.
Feeder, cost of construction up to 1837.  Total cost of both included improvements, exclusive of ordinary repairs, June, 1888.	<b>\$2</b> , 878, 910.
Number of locks on canal 20: feeder, 13	Size. $110 \times 18$ and $100 \times 18$ .
Length of canal, 66 miles: feeder, 7 miles: pond, 5 miles	78 miles.
Size of prism, canal and feeder	40 26 x 4.
Size authorized, chap. 218, Laws 1860	50 85 x 5.
Total cost, including improvements and enlargement up to 1875	<b>\$4,044,000.</b>

### LOCKS.

		CHAMPL	GL	en's Fal	la Freder.				
No. 12 34 55	10% 10% 10% 8% 9 9	No.  8 9 10 11 12 18 14	8% 10 9% 11% 9 10% 8	No.  15 16 17 18 19 20	8 7 8 34 9 10	No.	10 10 10 10 10 10 10	8 9 10 11 18	10 10 10 10 11 11 11

### BLACK RIVER CANAL, FEEDER AND BLACK RIVER IMPROVEMENT.

Construction authorized	
Construction commenced	January, 1838.
Estimated cost at engineer's prices	\$1,068,457.
Estimated cost at contract prices	<b>8</b> 9, 481, 669,
Estimated cost at engineer's prices Retimated cost at contract prices Canal completed	1849.
Cost of construction	<b>83</b> , 581, 954,
Number and size of locks	100 locks 90 v 15
Length of canal to Lyon's Falls Length of river to Carthage, and fall Size of prism of canal and feeder	85 miles.
Length of river to Carthage, and fall	42 miles: 91/ feet.
Size of prism of canal and feeder	42 and 28 x 4
Length of neviceble feeder and full	101/ miles · 8 10,100 feet
Burthen of boats	45 to 50 tons
Lockage of canal.	1 0891/ feet.
	-1

### LOCKS.

No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.
1	10	23	10	45	10	67	10	89	10
2	10	24	10	46	10	68	9	90	10
8	10	25	10	47	10	69	9	91	12
4	10	26	10	48	10	70	9	92	12 10
5	10	27	10	49	10	71	10	93	10
6	10	28	10	50	10	72	10	94	10
7	10	29	10	51	10	73	10	95	10 10
8	11	30	10	52	10	74	10	96	10
9	12	81	10	53	10	75	10	97	10
0	11	32	10	54	10	76	10	98	10
1	11	33	10	55	10	77	10	99	10
2	11	84	10	56	10	78	10	100	10
8	8	35	10	57	10	79	10	101	103
4	8	86	10	58	10	80	9	102	103
5	8	87	10	59	10	81	9	103	4
6	10	88	10	60	10	82	9	104	10
7	. 8	89	10	61	10	83	9	105	10
8	10	40	10	62	10	84	9	106	11
9	8	41	10	63	10	85	10	107	11
00	10	42	10	64	10	86	1134	108	12
1	10	43	10	65	10	87	10	109	12
2	10	44	10	66	10	88	10	1 2 2 2 2 2 2 2 2	

### ONEIDA LAKE CANAL AND ONEIDA RIVER IMPROVEMENT.

REMARKS.	Oneida Lake canal.	Oneida River improvement
Construction authorized Estimated cost at engineer's prices. Construction completed. Cost of construction Purchased of company by State. Enlargement of locks authorized. Number and size of new locks Size of prism Length. Feet of lockage	1886	\$368,164, For \$50,000. 2, 120 x 80 \( \frac{1}{2} \).

### LOCKS.

	I	RESENT	OLD LO	CKS.			ENLAR	EED LOC	KS AUTE	ORIZED.	
No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.
1 3 8	71/4 81/4 9	4 5	10 934	6 7	7½ 6 1-12	1 2 3	81/4 81/4 8:	<b>4</b> <b>5</b>	10% 9%	6 7	8 7);

### OSWEGO CANAL.

Total cost, \$4,992,926.

REMARKS.	Oswego canal.	Enlarged Oswego canal.
Construction authorized Enlargement of locks Estimated cost at engineer's prices Estimated cost at contract prices. Construction completed. Cost of construction Number of locks, and size Feet of lockage Average cost of one lock Size of prism of canal Guard locks Burthen of boats Length of canal	\$227, 000 \$437, 000 December 10, 1898 \$565, 437 15, 90 x 15 154 85 feet \$10, 000 40 and 26 x 4 Six 50 to 75 tons	Chapter 262, Laws of 1847. \$1, 926, 336, \$3, 051, 190. September, 1863. \$4, 427, 589. 17, 110 x 18. 154.85 feet. \$31, 000. 70 and 56 x 7 feet. Five. 230 tons.

### LOCKS.

No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.
1 9 8	11	4} 6	7	8 9 10 11	9	19 18 14 15	111/ 5.65 91/ 5%	16 17 18	8% 10% 9%

### ANNUAL REPORT OF THE

### CAYUGA AND SENEOA CANAL - CAYUGA INLET.

### Total cost, \$2,232,632.

REMARKS.	Cayuga and Seneca canal.	Cayuga inlet.
Construction authorized, enlargement of locks.  Enlargement of prism. Estimated cost at engineer's prices. Estimated cost at contract prices. Canal completed Cost of construction.  Number of locks, and size.  Feet of locksge.  Length and size of prism.	<b>4011 100</b>	April 15, 1854.

### LOCKS.

No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.
1 2 8	7	5		6 7	9.60 6	8	5.70 10	10	10

### CROOKED LAKE CANAL.

Construction authorized	April 11, 1839.
Construction commenced	April, 1830
Estimated cost at engineer's prices	\$119, 198.
Estimated cost at contract prices	\$95, R2O.
Canal completed	October 10, 1888.
Cost of construction	\$490,600.
Number of locks, 27; size	90 x 15 feet. •
Size of canal prism	
Length of canal	8 miles.
All the locks are composite.	
Fact of lookers	977 88_100 foot

### LOCKS.

No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.
1 3 4 5	10.21 10.26	7 8 9 10 11	10.28 10.80 9.49	13 14, 15 16 17 18	9.41 9.86 10 10.29 9.94 9.73	19 20 21 23 24	10.18 9.88 10.08 10.31 10.67 10.87	25 26 27	10.15 10.58 10.43 +4.59

### CHEMUNG CANAL AND FEEDER.

Construction authorized	
Estimated cost, engineer's prices	<b>\$</b> 381,225.
Estimated cost, contractors prices	\$291,881.
Construction completed	September, 1881.
Cost of construction, 1881	\$314,895.
Cost of construction,	<b>\$2</b> , 150, 450.
Length and size main canal	28 miles: 42 x 28 x 5 feet.
Length and size of feeder	16 miles: 41 x 96 x 4 feet.
Number and size of locks on canal	49 locks: 90 x 15 feet.
Number and size of locks on feeder	4 locks: 90 x 15 feet.
Kind of locks	Wood.
Cost of each first set \$1.650; age of lock	9 years.
Cost of each second set. 5.500: age of lock	19 years.
Cost of each third set 8,484; completed	September 9, 1868.

<sup>\*</sup>Guard lock over L. M. sill, December 20, 1858.

### LOCKS.

No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.
1	10.1	11	9.11	21	10	31	10.8%	41	10.6
9	10.6	12	10	22	10.8	32	9.10	42	9.5
8	10.7	13	9.11	23	9.7	83	10	43	10.2
4	10.7	14	10	24	10.4	84	10	44	10.3
5	10.3	15	10	25	10.2	85	10 10.1	45	9.5
6	10.3	16	10	26	9	86	10.1	46	9.1
7	10.5	17	10.1	27	10.9	87	10	47	8 10
8	9.4	18	10.3	28	10.3	88	10 10	48	7.8
9	10.3	19	10.3	29	9.8	39	10.1	49	13.3
10	10.3	20	9.7	30	10.2	40	10	100000	

### CHENANGO CANAL.

Construction authorized.	February 28, 1883.
Construction commenced	July, 1834.
Construction, estimated at engineer's prices	\$1,960.450
Construction, estimated at contractors' prices	<b>\$1.859.849.</b>
Construction completed	October, 1836.
Construction, actual cost	<b>\$4.</b> 780, 996.
Number and size of locks	116 locks: 90 x 15 feet.
Size of prism	40 and 28 x 4.
Kind of locks	Rubble stone.
Average cost of one lock	<b>\$8.000.</b>
Length of main line of canal	97 miles.
Feet of lockage	1.015%.
Burthen of boats	50 to 70 tons.

### LOCKS.

No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.
	5 6	25	9	48	9	71	9	94	8
	6	26	9	49	10	72	9	95	8
	8	27	10	50	10	78	9	96	8
	8	28	10	51	10	74	9	97	8
	10	29	10	52	10	75	9	98	6
	10	30	10	53	10	76	10	99	10
	10	31	10	54	10	77	6	100	10 10
	9	32	10	55	10	78	5	101	10
	9	83	10	56	10	79	5	102	6
	8	34	10	57	10	80	8	103	10
	814	85	10	58	10	81	8	104	10
	8.4	36	10	59	10	82	9	105	7
	8.4	37	/10	60	10	83	9	106	6
	8.4	38	10	61	10	84	8	107	10
	8.4	39	9	62	10	85	6	108	7
	7	40	9	63	10	86	10.8	109	6
	7	41	9	64	10	87	10	110	o o
	8	42	9	65	10	88	10.6	111	19
	10	43	9	66	10	89	7	112	19
	10	44	9	67	9.3	90	8	118	9
	9.6	45	9	68	9.3	91	8	114	18
	9	46	9	69	9.3	92	8	115	20
	9	47	9	70	9	93	6	116	
	ğ	********				99		*******	****

### GENESEE VALLEY CANAL AND DANSVILLE BRANCH.

Construction authorized	May 6, 1896.
Estimated cost at engineer's prices.  Estimated cost at contract prices.  Completed to Dansville	\$4,900,122.
Completed to Olean	November 1956
Completed to Mill Grove pond.  Total cost of canal and reservoirs.  Length of canal and side cut.	December, 1861. \$6, 975, 300.
Length of canal and side cut. Size of prism of same	134% miles.
Burthen of boats	50 to 55 tons.
78 composite locks, cost each	in a single
11 wood locks, cost each Total number and size of locks	112 locks 90 x 15 feet.

LOCKS.

No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.	No.	Lift.
1	14.6	24	9	47	10	70	7.9	93	8
2	6	25	10	48	10	71	11	94	8
3	10	26	10	49	10	72	8	95	9
4	10	27	11	50	12	73	8	96	10
5	10	28	8	51	12	74	9	97	10
5	7	29	12	52	12	75	9	98	11
7	6.1%	30	10	53	12	76	10	99	11
8	7	31	10	54	12	77	10	100	10
9	11.6	32	10	55	12	78	10	101	8.9
0	11.6	33	10	56	12	79	10	102	8
1	11	34	10	57	12	80	8	103	8 9 9 ned
2	10	35	10	58	12	81	10	104	9 5
3	11	36	10	59	12	82	11	105	99 99 11
1	11	37	8	60	12	83	11	106	11 1
5	11	-38	10	61	8	84	11		
6	11	39	11	62	12	85	11	C1	
7	11	40	11	63	6	86	11	Dansv'lle	Branch
8	10	41	11	64	12	87	11	1	1
9	8	42	10.9	65	9	88	11	2	
0	11	43	10	66	9	89	11	3	
1	10	44	10.6	67	9	90	11	4	82.6
2	10	45	9	68	10	91	8	5	06.0
8	11	46	10	69	10	92	8	6	
4.4				17. 100.11				7	
								8	

The statements A and B, hereto appended, were prepared in auditor's office, and are taken from his report for 1875, and are believed to give the approximate cost of the several canals with more correctness than the amounts stated in foregoing tables, and besides, are brought down to a later date.

# STATEMENT A.

Showing the total cost (to September 30, 1874), of constructing the several canals, the interest thereon, and the cost of each with interest added.

CANAL.	Cost of construction to September 30, 1874.	Interest at 6 per cent to September 30, 1874.	Total cost of construction with interest added.
Erie and Champlain Oswego Gavuga and Seneca	\$52,283,257 79	\$80,778,031 26	\$133,061,289 05
	4,218,173 02	4,484,228 04	8,702,401 06
	1 778 435 47	1,991 849 78	3,770,985,95
Ohemung	1,401,904 03	1,913,426 52	3,315,330 55
Grooked Lake		631.460 02	1,026,394 75
Chenango	4,766,014 37 3,826,423 89	6,216,891 30	10,982,905 67
Black River		5,458,089 06	9,284,512 95
Genesee Valley	6,698,147 24	10,384,59948 $193,65336$	17,082,746 72
Oneida Lake	451,015 20		644,668 56
Baldwinsville	31,000 52	21,794 16	52,794 68
Oneida River Improvement	223,977 83	210,945 90	434,923 73
Seneca River Towing-path	1,602 65 2,020 00	1,249 50	2,852 15 3,340 00
Total	\$76,076,906 74	\$112,287,538 38	\$188,364,445 12

# STATEMENT B.

פתכנו מנות תיו נונפ נ	euch und an ine canus from the opening thereby to Asptember 50, 1012.	ng merenj vo ocpremo	er ou, 101±.	
CANAL.	. Ветепие.	Cost of collection and ordinary repairs.	Loss.	Profit.
Erie and Champlain	#1	\$28,503,371		\$90,640,710 03
Озмево	3,545,525,53	જ		559,754 87
Cayuga and Seneca		888,532		125,47155
Chemung		1,938,635	\$1,423,663 59	
Crooked Lake		414,639	369,442 90	• • • • • • • • • • • • • • • • • • • •
Chenango	733,551 93	2,013,942	1,280,390 12	• • • • • • • • • • • • • • • • • • • •
Black River	206,534 90	1,169,430	962,895 81	
Genesee Valley	801,468 00	2,562,472	1,761,004 09	• • • • • • • • • • • • • • • • • • • •
Oneida Lake	65,180 51	138,125	72,945 12	• • • • • • • • • • • • • • • • • • • •
Baldwinsville	1,261 48	18,038	16,777 10	• • • • • • • • • • • • • • • • • • • •
Oneida River Improvement	214,427 52	41,170		173,257 05
Seneca River Towing-path	. 7,235 38	19		7,215 84
Cayuga Inlet	7,534 63	948 16		6,586 47
Total	\$126,300,972 83	\$40,675,095 75	\$5,887,118 73	\$91,512,995 81
		The second secon	The second name of the second na	The second name of the second na

TABLE showing the amount of tolls received annually on all the New York State canals up to September 30, 1864, also annual cost of repairs to same date.

YEAR.	Tolls.	Cost of repairs.
391	\$2,200 00	
322	44, 486 72	***************************************
929	119, 988 08	***************************************
824	289, 320 58	
925.	521, 343 94	0.901.000000000000000000000000000000000
96	844, 508 02	\$124,652 5
97	880, 450 09	284, 654 1
328	829, 535 10	224, 227 2
329	815, 239 58	255, 729 5
330	1,042,699 24	229, 850 6
381	748, 561 29	168, 715 5
99	1, 112, 194 74	850, 426 8
333	1, 388, 055 53	377, 783 4
394.	1, 381, 951 52	471, 106 9
335,	1, 482, 963 11	441, 367 5
336	1, 595, 619 48	892, 444 2
397	1, 324, 429 27	486, 412 4
338	1, 464, 105 16	476, 995 2
389	1, 653, 007 56	881, 903 1
340.	1, 602, 059 10	389, 247 9
941	1, 987, 807 85	880, 365 5
42	1, 795, 484 80	432, 105 7
348	1, 952, 587 83	378, 618 4
	2, 386, 277 34	444, 844, 9
345	2, 374, 007 56	526, 001 3
346.	2, 788, 134 76	509, 510 9
347	8, 460, 975 92	493, 157 1
348	8, 153, 614 24	687, 792 9
349,	8, 377, 784 27	528, 371 3
350	3, 390, 476 63	560, 845 6
	2, 702, 070 34	682, 598 8
351	8, 173, 222 49	809, 451 9
359	3, 161, 425 14	778, 847 5
353	2, 980, 139 97	969, 398 4
354	2, 631, 491 11	805, 654 6
355		
356	2,719,925 63 2,529,865 88	606, 932 3
557		762,042 9
358	2, 045, 442 68 1, 812, 280 80	890, 941 9 629, 600 5
359		878, 285 8
860	2, 379, 534 04	
361,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	3, 353, 168 97	367, 606 8 428, 088 6
362	4, 790, 518 09	
363	5, 028, 431 32	520, 970 9
304	4, 308, 781 20	812, 812 9
365	8, 516, 948 63	1, 595, 671 8
	\$93, 943, 119 60	\$21, 035, 517 7



# TABLES

OF THE PRINCIPAL PLACES ON THE CANALS, AND THEIR DISTANCE FROM EACH OTHER.

. A LIST of the principal places on the Canals, and their distance from each other, as adopted by the Canal Board.

ERIE CANAL.

Buffalo.	88 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
Lower B. Rock.	28888888888888888888888888888888888888
.abnawanoT	88428008468168866886888888888888888888888888
Lockport.	*2000
Medins.	8850826424242688888888888888888888888888888
Albion.	83 : \$2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Brockport	**************************************
Косревеет.	- 1
Palmyra.	######################################
Lyons.	25 4 5 5 5 5 6 5 6 5 6 5 6 5 6 6 6 6 6 6
Môntezuma.	E8#28924288658442460000000000000000000000000000000000
Jordan.	85888888888888888888888888888888888888
Вутасцве.	\$2225
Коте.	**************************************
Utica.	<u> </u>
Little Falls.	24 28 28 28 28 28 28 28 28 28 28 28 28 28
Fultonville.	88 88 88 88 88 88 88 88 88 88 88 88 88
Schenectady.	48888488888888888888888888888888888888
West Troy.	<u>\$_86586888888888888888888888888888888888</u>
.vasdlA	2 ::8 2 cc
NAMES OF PLACES.	Adams' Basin Abbary Abbary Abbin Barieville Bells Isle Bells Isle Bells Isle Bells Isle Brighton Brockport Brockport Brockport Brockport Brockwas Burnally Brockwas Burnally Canapharie Cantreport Can

PP 228 25 25 25 25 25 25 25 25 25 25 25 25 25
58888888888888888888888888888888888888
5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
8-53-58 58 58 58 58 58 58 58 58 58 58 58 58 5
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5811274 - 58 po 8 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
839-79858852587a-6105548868888888505488768878888888888888888888888888888888
88322222222222222222222222222222222222
6864865265588888888888888888888888888888
858628888525644658654683788658524625542 88888528888272 884
### 85 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
55544554666666666666666666666666666666
表表表: 18. 18. 18. 18. 18. 18. 18. 18. 18. 18.
5452122888125458885555555555555555555555
2011228 2011228 20112212212212212228 20112212212212212228 2011221221221222
<b>5.</b> 12. 12. 12. 12. 12. 12. 12. 12. 12. 12.
888
\$5888888888888888888888888888888888888
Gaine's Basin Gasport Gasport Gasport Gasport Higginaville Hindbourph Holly Hulberton Junction Junctio

# Erro Canal—(Continued).

Albany.  West Troy.  Schenectady.  Eqitonville.  Little Falls.  Utics.	227         220         197         171         140         117         108           318         316         320         197         171         140         117         109           318         318         318         319         319         314         318         318           320         228         229         276         280         38         15         136         134           30         28         28         28         28         15         30         36         134         136         134         136<
Syracuse. Jordan.	24 12 12 12 12 12 12 12 12 12 12 12 12 12
Montezuma. Lyona,	8 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Palmyra. Rochester.	28.28.28.28.28.28.28.28.28.28.28.28.28.2
Brockport.	28 28 28 28 28 28 28 28 28 28 28 28 28 2
Alblon,	25.2 25.2 25.2 25.2 25.2 25.2 25.2 25.2
Medina, Lockport,	25.52
.ерпеменот.	24 - 25 - 25 - 25 - 25 - 25 - 25 - 25 -
Lower B. Rock	120 100 100 100 100 100 100 100 100 100

### CHAMPLAIN CANAL.

NAMES OF DIAGES	Dis	TANCE FRO	ож .
NAMES OF PLACES.	Place to place.	Albany.	Whitehall.
Albany West Troy Junction Waterford Mechanicrille Stillwater village Bleecker's Basin Wilbur's Basin Van Duzen's Landing Schuylerville Saratoga Bridge Fort Miller Moses Kill Fort Edward Glen's Falls feeder Baker's Basin Smith's Basin Fort Ann Comstock's Landing Whitehall	7088422582885215	0 7. 7 12 20 24 26 28 88 88 41 44 49 52 57 61 65	78 66 66 51 58 41 4 4 47 80 83 83 83 20 24 22 21 16

### GLEN'S FALLS FEEDER — (Champlain Canal).

NAMES OF PLACES.	Distance from place to place.
Champlain canal Sandy Hill Glen's Falls Head of the feeder Head of the pond	0 2 3 2 5
From Junction to Whitehall Length of Glen's Fails feeder Length of pond above Troy dam.	64 12 8
Total	78

### CHENANGO CANAL.

	DISTANCE PROM					
NAMES OF PLACES.	Place to place.	Utica.	Hamil- ton.	Oxford.	Bing- hamton,	
Utics Road leading from New Hartford to Whitesborough, Clinton Deansylle Oriskany Falls Solsville Bouckville Peck's Basin Hamilton Lebanon Factory Earlville Sherburne North Norwich Plasterville Norwich Oxford Haynes' Mill Greene Forks. Pond Brook Port Crane. Crocker's Mills Binghamton	086558224424542490482517	0 3 9 14 19 22 24 26 30 32 36 41 45 60 70 74 88 89 90	30 27 21 16 11 16 6 6 4 4 0 2 6 11 15 17 21 21 30 44 44 52 54 55 66 67	600 577 511 469 418 386 366 387 390 284 191 191 191 191 192 292 292 800 87	977 944 948 888 889 78 73 71 71 71 67 65 65 65 65 27 27 28 88 88 75 71 87 87 87 87 87 87 87 87 87 87 87 87 87	

### Oswego Canal.

		DISTANCE FROM				
NAMES OF PLACES.	Place to place.	Syra- cuse.	Oswe- go.			
Syracuse Salins.	2	0	38 36 38			
Liverpool Mnd Lock Cold Spring New Bridge	2	7 8 18	81 80 25			
Three-River Point Phœnix Sweet's Lock	2 2 8	15 17 20	28 21 18			
Ox Creek Fulton Braddock's Rapid	2 4 4	28 27 81	15 11 7			
Tiffany's Landing. High Dam Oswego	1 2	85 86 88	. 2 0			

### CAYUGA AND SENECA CANAL.

NAMES OF PLACES.		DISTANCE FROM			
		Monte- zuma.	Geneva.		
Montezuma Seneca River S. Dermont Seneca Falls Chamberiain's Mills Waterloo. Teal's Geneva Lateral canal to East Cayuga village, 2 miles	8 2 2 5	0 5 7 10 12 14 19	21 16 14 11 9 7		

### CHEMUNG CANAL.

	DISTANCE FROM					
	Place to place.	Seneca Lake.	Elmira.	Knox- ville.		
Seneca Lake Havana Miliport. Horseheads Elmira Knoxville	7	0 4 10 17 28 33	28 19 18 6 0	38 29 28 16 22 0		
FEEDER (Chemung canal).  Horseheads Miller's Basin Dam at head of feeder Knoxville	7	17 24 81 83	6 18 20 23	16 9 2		

### CROOKED LAKE CANAL.

		DISTANCE FROM			
NAMES OF PLACES.	Place to place.	Seneca Lake.	Crook'd Lake.		
Dresden Mallory's Andrews' and Way's Penn Yan Crooked Lake	0 0 2 2 1	0 8 5 7 8	8 5 8 1		

### GENESEE VALLEY CANAL.

	place				DIST	NCES	PROM			
NAMES OF PLACES.	Distance from pl	Rochester,	Scottsville.	Mount Morris.	Nunda.	Portageville.	Oramel.	Cuba,	Olean,	Dansville.
Rochester Rapids (Lock No. 1). Tone's Basin Scottsville Canawangus (Avon road) Sackett's Basin Fowlerville Road Barclay's Mill Tiffardinia Spencer's Basin Cuylerville Cuylerville Leicester (Moscow Landing) Genesee River dam Mount Morris. Shaker Settlement Brushville Nunda Messenger's Hollow Genesee Falls (Tunnel Section) Portageville Lock No. 61 Mixville Landing (Wiscoy feeder) Fillmore Burrville Caneadea Centre Oramel Belfast Rockville Caseville Black Creek Corners Cuba Sichua Feeder Hinsdale Olean  Dansville Branch	0264822231211214552442514612223145617	0 2 8 12 2 2 2 2 4 4 6 5 1 2 2 2 2 2 4 4 6 5 1 2 5 7 7 8 8 3 2 4 1 6 5 9 9 9 9 100 7 107	12 10 4 0 8 10 11 12 14 17 18 20 21 22 24 25 29 41 45 47 77 66 66 66 67 17 77 66 66 66 67 67 77 76 76 76 76 76 76	87 35 29 25 17 13 11 18 7 5 4 4 3 1 1 0 4 9 14 4 16 6 16 20 22 27 28 38 38 38 38 38 41 46 46 46 46 46 46 46 46 46 46 46 46 46	51 49 43 39 31 29 27 25 22 21 19 18 17 15 14 10 5 5 6 8 13 14 22 27 28 22 23 24 24 24 24 24 24 24 24 24 24 24 24 24	59 57 51 47 39 37 35 33 30 29 27 25 22 22 22 22 22 22 22 22 22 22 22 22	78 76 66 58 56 54 49 48 44 44 42 41 37 22 11 21 11 21 21 21 21 21 21 21 21 21	93 91 85 81 73 77 77 64 68 68 60 60 50 50 50 50 50 50 50 50 50 50 50 50 50	107 105 99 95 87 85 83 83 81 77 77 74 77 77 77 77 77 77 77 77 77 77	552 444 40 382 30 283 262 222 200 19 16 15 11 16 21 27 27 29 34 36 39 45 46 48 50 50 50 50 50 50 50 50 50 50 50 50 50
Shaker Settlement Fitzhugh's Basin Kyserville Rock Spring Sherwood's Landing Steam Saw Mill McNair's Landing. Woodville Cumminsville Dansville	0 2 1 2 1 1 1 1 1	41 43 44 46 47 48 49 50 51 52	29 31 32 34 35 36 37 38 39 40	4 6 7 9 10 11 12 13 14 15	10 12 13 15 16 17 18 19 20 21	18 20 21 23 24 25 26 27 28 29	87 89 40 42 43 44 45 46 47 48	52 54 55 57 58 59 60 61 62 63	66 68 69 71 72 73 74 75 76	111 9 8 6 5 4 8 2 1

### DANSVILLE SIDE CUT — (Genesee Valley Canal).

NAMES OF PLACES.	Distance from place to place.
Shaker Settlement (Junction) Fitzhugh's Basin Kyserville Rockspring Sherwood's Landing Steam Saw Mill McNair's Landing Woodville Cumminsville Dansville	1 .

### Oneida Lake Canal and Feeder.

### BLACK RIVER CANAL.

NAMES OF PLACES.	ı.	DISTANCE FROM	
NAMES OF FLACES.	Place to place.	Boonville.	
Rome Ridge Mills Lock No. 7. Walworth's Store House Westernville Wells Brook Aqueduct Stringer's Creek Lansing Kill Lock No. 3! Lansing Kill Lock No. 3! Lansing Kill Lock No. 70. Boonville Sugar River Little Falls, Lansing kill Lock Po. 70. Loch No. 97. Lyon's Falls Lansing Kill Greeker Lock No. 97. Lyon's Falls Lansing Kill Greeker Lock No. 97. Lyon's Falls Lansing Kill Greeker Loch No. 97. Lyon's Falls Lawkinsville, on feeder (8 miles from Boonville). A. Lee's, on feeder State Dam, on feeder State Dam, on feeder Head of reservoir	8159919192228518190914	0 2 5 6 9 11 13 14 16 17 19 21 22 28 28 29 38 88 88 88 88 88 88 88 88 88 88 88 88	25 23 20 10 16 14 12 11 9 8 6 4 7 8 10 8 10 12

### ONEIDA RIVER IMPROVEMENT.

NAMES OF PLACES.	Distance from place to place.
Three-River Point Peter Scott Creek	0
Oak Orchard Caughdenoy Brewerton	7

### CANAL COMMISSIONERS.

GENERAL SUMMARY.			
Erie canal			
Albany basinfeeders			
Champlain canal			miles.
Glen's Falls feeder	19		
Pond above Troy dam			miles.
Chenango canal	••••		miles
Black River canal feeder and reservoir.	85 12		
River improvement			miles
Oneida Lake canal and feeder		7	miles
Oswego canal	1		
Oneida River improvement	20		
Seneca River towing-pathSeneca River improvement.	12	×	
Caynga and Seneca canal.		77	miles.
Crooked Lake canal		8	miles
Chemung canal			
feeder		89	miles.
Genesce Valley canai  Dans rille side cut	107		
Pausymo sido cub			miles
Total			21
LUMI:	• • • •	900	шпев



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